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ABSTRACT

The seventh in a series and the third annual update, this annotated bibliography provides an overview of the literature entered in the ERIC database in 1987 on computer use in elementary and secondary education, adult education, and special education. The first of four sections provides a list of overview documents on computer assisted instruction. Focusing on special applications, the second section lists documents on computer literacy, copyright, counseling and guidance, interactive video, management and administration, research, simulation, software evaluation, and tests and testing. References to documents for various subject applications are listed in the third section under the headings of Agricultural Education, Business Education, English as a Second Language and Foreign Languages, Language Arts, Logo Programming Language, Mathematics, Reading, Science, Social Studies, Vocational Education, and Writing. The fourth section contains references to documents on special populations, i.e., adult education, disabled learners, distance education, minority groups, and preschool education. Each entry includes the title and author of the document, information on its price and availability, the publication type, major ERIC descriptors, and an abstract. An alphabetical index of authors and instructions for ordering ERIC documents are included. (BBM)

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COMPUTER-BASED EDUCATION

The Best of ERIC, 1987

by
Pamela McLaughlin

ERIC
1988

ERIC Clearinghouse on
Information Resources
Syracuse University
School of Education
School of Information Studies
Huntington Hall
Syracuse, NY 13244

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The Best of ERIC 1987

by

Pamela McLaughlin

December 1988

ERIC Clearinghouse on Information Resources
Syracuse University
Syracuse, New York

Pamela McLaughlin is the Coordinator of Online Search Services at E. S. Bird Library, Syracuse University, Syracuse, New York 13244.

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Computer-Assisted Instruction: The Best of ERIC 1973-May 1976, by Marian Beard (ED 125 608). August 1976.

The Best of ERIC: Recent Trends in Computer-Assisted Instruction, by Richard E. Clark (ED 076 025). 1973.

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FOREWORD

A content analysis of the educational technology literature in 1988 revealed that computers in education was one of the three most frequent subjects in the literature during that year. The content analysis used professional journals, conference papers, doctoral dissertations, and ERIC input as sources.

Such a finding is not surprising. New journals about computing in educational settings appear every few months. There are professional conferences devoted entirely to applications of computers in teaching and learning. And recent statistical reports show that virtually every elementary and secondary school in the United States now has at least one computer and usually more.

The impact of such growth is evident in the ERIC Clearinghouse on Information Resources. More reports on computers in schools arrive each year, including program descriptions and/or evaluations, case studies, and curriculum guides. That makes the work of the editor of this series, which has appeared since 1973, more difficult since there has to be some limitation to the size of the volume that presents the "Best of ERIC." The criteria for selection remain consistent with previous years even though the number of items to be reviewed increases. One hopes that the result is increasing quality of the items listed in this compilation.

We look to our users for comments on ways in which we might improve this annual publication. Does it serve you well? What could we do to make to more useful for you?

We also encourage you to use ERIC to find items in your area of special interest that we might have overlooked. You will also find more recent listings since this monograph contains listings from 1987 and newer items are now in the ERIC database.

Donald P. Ely, Director
ERIC Clearinghouse on Information Resources
Syracuse University

INTRODUCTION

This publication is the second annual update in the *Computer-Based Education: The Best of ERIC* series. Other volumes in the irregularly-published series are listed on the back of the title page.

This series has been designed for use by educators who need to make decisions about the use of microcomputers in the schools. This update provides an overview of the literature entered in the ERIC database in 1987 on computer use in elementary and secondary schools, adult education, and special education.

Higher Education Excluded. Applications of computer-based education in institutions of higher learning differ in many ways from applications in elementary and secondary schools. The level of software, availability of hardware, and other issues related to growth and development of computing and management of computing resources in higher education are sufficiently distinct to warrant separate treatment.

Scope of the Bibliography

Substantive ERIC documents from the 1987 volume of *Resources in Education* (RIE) have been selected for inclusion in this listing; journal articles have not been included due to their availability in other bibliographic sources. For each topic covered, selected ERIC document citations are listed. Types of materials targeted for selection include:

- Handbooks;
- Literature reviews;
- Teacher's guides;
- Administrator's guides;
- Program descriptions;
- Bibliographies;
- Research reports;
- Conference proceedings; and
- Evaluative reports.

Because of the size of the literature base, emphasis has been placed on documents that focus broadly on the topic of computer-based education, and provide information to aid in the decision making process. To this end, short documents (less than 10 pages), opinion papers, and descriptions of individual programs have generally not been included.

Search Strategy

A computerized search of the ERIC database on CD-ROM was performed for the year 1987, using the following major terms: Computer Assisted Instruction; Computer Managed Instruction; Computer Oriented Programs; Computer Uses in Education; Computer Literacy; Computer Simulation; Computer Software; and Courseware. (The last two terms have become ERIC descriptors since the last annual update was compiled.) This search yielded 456 items, of which 295 were selected for inclusion. Most of the documents included in this bibliography are representative of the above criteria.

New Categories

In this update, most conference proceedings identified were oriented toward a particular theme, hence were included in the appropriate category for that theme. As a result, there is no general category for conference proceedings.

Special Population category changes include *Minority Groups*, replacing *Equity* as a *Special Application*. Most documents identified for this section deal with issues broader than equity, and include groups such as Native American, Hispanic, and female students. *Distance Education* was reintroduced to address the delivery of instruction to schools in remote areas, as distinct from uses in adult education. A critical mass of items dealing with computer uses in preschool settings necessitated a *Preschool Education* category.

The documents listed in the *Agricultural Education* section could not logically be incorporated in another section, although there are only three listed.

The category *Language Arts* was added to provide for access to materials that cross over reading and writing, such as the Writing to Read program.

Organization of the Bibliography

This bibliography is divided into four major sections. The first contains 24 reports and papers that provide an overview or general discussion of computer assisted instruction, including resources and guidelines for the

implementation of CAI programs in the schools, reports of surveys of instructional computing, a history of instructional computing, a collection of essays, and two conference proceedings.

Focusing on special applications of computer-based education, i.e., those without a specific subject orientation, the second section contains 22 documents on computer literacy, including teacher and administrator guides; seven papers on copyright issues; 10 reports on counseling and guidance, including the proceedings of one conference; three items on interactive video; 20 documents on management and administrative issues, including student records processing and office technologies; five reports on research; five papers on computer simulation; 15 documents on evaluation, including both criteria for software evaluation and evaluations of software packages; and 10 reports on tests and testing, including evaluation of test construction software and reports of research in computer aided testing.

The third section covers computer applications in various subjects, including three reports on agricultural education; six items on business education; four documents on language arts, including the Writing to Read program; three papers deal with Logo programming; 13 documents on mathematics instruction; 23 items on teaching English as a second language and foreign language instruction, including many program descriptions; 10 on computer uses in reading instruction; 13 on science teaching; 10 papers on social studies; 16 on vocational education; and 15 on writing instruction.

The final section addresses special populations and includes 12 documents on computer applications in adult education; 26 on persons with disabilities and special education; two reports on distance education; eight papers on minority groups, including migrant workers and Native Americans; and four reports on computer uses in preschool settings.

Within each section, documents are listed alphabetically by personal author, editor, or corporate author. If no author is available, items are alphabetized by title.

There is some overlap between the sections in the subject matter covered, e.g., one document in the Logo section describes a study of the number of writing revisions made by young children using Logo, which may also be of interest to the teacher looking for information on writing instruction. The Writing To Read program described in a document in the Language Arts section should also be relevant to documents in the separate sections on Reading and Writing. And a document in the Adult Education section describes a program designed to improve reading skills.

Individual items have not been listed in more than one category, so users will want to check all related sections for information on a given topic.

COMPUTER ASSISTED INSTRUCTION

Overview Documents

ED282531
Use of Computers in Home Study.
Ancarrow, Janice S.
Center for Statistics (OERI/ED), Washington, DC.
1986; 42p. For additional reports from the same study, see ED 278 363 and ED 278 391.
Available from: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Research Report (143)
Major Descriptors: *Cognitive Style; *Computer Assisted Instruction; *Computer Software; *Home Study; *Microcomputers

Based on data gathered and analyzed for the Home Information Technology Study (HITS), which was jointly sponsored by the Center for Education Statistics in the U.S. Department of Education and the Corporation for Public Broadcasting to study informal, nonschool learning in households, this report focuses on the use of computers in home study. The following topics are discussed: (1) availability of hardware and software; (2) use of computers in the home; (3) computers and the users' most important learning activity; (4) learning style preference and computers; (5) awareness of potentially helpful computer programs; and (6) attitudes toward computers as learning aids. Tables include comparisons between the use of computers and the use of other technologies and resources—books/magazines, television, videocassette, records, radio, and audiocassette—by the four age groups surveyed (2-5, 6-11, 12-17, and 18 and over). Comparison is also made between learning style preference and use or nonuse of technology. The percent of each age group that knew about the potential helpfulness of a particular resource is also given, as well as the percent who actually used that resource, and perceived helpfulness ratings are shown for each resource whether or not it was actually used.

ED274307
The Second National Survey of Instructional Uses of School Computers: A Preliminary Report.
Becker, Henry Jay
1985, 32p. Paper presented at the World Conference on Computers in Education (Norfolk, VA, July 29-August 2, 1985). For a summary of the first national survey, see ED 257 448.
EDRS Price—MF01/PC02 Plus Postage.
Major Descriptors: *Computer Uses in Education; *Microcomputers
Document Type: Research Report (143); Conference Paper (150)

This report presents preliminary descriptive data from a national survey of U.S. elementary schools, conducted in 1985, which focused on the schools' instructional uses of computers, including efficiency and cost-effectiveness. Specific topic areas covered include: (1) what hardware is in different types of schools; (2) which teachers use the equipment with their students; (3) allocation of computer time among computer-assisted instruction, programming, discovery-learning, word processing, and other activities; (4) number of students involved in computer use of various types; (5) how much girls, "average" students, and below-grade-level students are using computers in comparison with boys and higher-achieving students; (6) teachers' perceptions of the primary functions of computers and consequences that have emerged from computers' use; (7) changes that have been observed between 1983 and 1985; and (8) the primary problems that teachers see preventing more effective use of computers. Eight graphs illustrate the data presented in this report. Additional detailed analyses of the survey data will be reported in a series of newsletters to be issued on a periodic basis.

ED274319
Instructional Uses of School Computers. Reports from the 1985 National Survey. Issue No. 1.
Becker, Henry Jay
Johns Hopkins Univ., Baltimore, Md. Center for Social Organization of Schools.
Instructional Uses of School Computers, n1 Jun 1986
June 1986, 13p. For a preliminary report on this survey, see ED 274 307. For a report related to the first survey, see ED 244 618.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Serial (022); Research Report (143)
Major Descriptors: *Computer Assisted Instruction; *Computer Uses in Education; *Data Collection; *Microcomputers; *School Statistics; *Use Studies

The Second National Survey of Instructional Uses of School Computers gathered information from more than 10,000 principals and computer-using teachers in a probability sample of over 2,300 U.S. elementary and secondary schools during the spring of 1985. Information was obtained through questionnaires and telephone interviews. The first of six to be issued from this survey, this report concentrates on basic numbers. In a typical school, during the 1984-85 school year, nearly half of the elementary and middle school pupils and as many as one-third of the high school students made some use of computers at school. One-fourth of all U.S. teachers used computers "regularly" with students during the year, and the amount of experience that any one computer-using student had with school computers doubled between 1983 and 1985. Mathematics, language arts, computer literacy, programming, and business education were the major subjects for which computers were used. Computers used for school instruction can be found in classrooms, laboratories, libraries, offices, and hallways; they can be fixed or on mobile carts to rotate among several rooms. Students are getting more time to use computers because there are more computers at individual schools and each computer is used more. Computer laboratories are used for more hours of the week than are classroom or library computers, especially in elementary and middle schools, and the typical student working in a computer laboratory uses computers for about twice as much time as the typical computer user in a classroom. Data are displayed in seven tables and nine figures.

ED279303
Instructional Uses of School Computers. Reports from the 1985 National Survey. Issue No.3.
Becker, Henry Jay
Johns Hopkins Univ., Baltimore, Md. Center for Social Organization of Schools.
Nov 1986, 17p. For an overview of the survey, see ED 274 307; for issue No. 1., see ED 274 319
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Research Report (143)
Major Descriptors: *Administrator Attitudes; *Computer Assisted Instruction; *Microcomputers; *Outcomes of Education; *Teacher Attitudes; *Use Studies

The results of the Second National Survey of Instructional Uses of School Computers presented here are based on questionnaire and interview data from roughly 8,000 principals and computer-using teachers in more than 2,100 elementary, middle, and high schools, both public and private. The third of six reports to be issued from this survey, this report presents two types of survey information. The first several sections focus on the perspective of principals and primary computer-using teachers (PCUTs) about the impact of computer use on organizational, social, and academic outcomes at their schools in general. The remainder of the report presents the perceptions of computer-using teachers from the same schools about the impact of computers on their own teaching and on students in their classes. The survey questions examined all lead to a common conclusion: as of Spring, 1985, computer-using teachers were excited about the possibilities of using computers and saw significant changes occurring mainly in four areas: student motivation, student cooperation and independence, opportunities for high-ability students in programming activities and in other higher-order thinking and writing skills, and opportunities for low-ability students in mastering basic skills. Nevertheless, the promise of computers was not yet fulfilled for average students, for diagnosing specific instructional needs, or for improving most learning of facts and concepts. Data are displayed in nine tables and three figures.

ED280433
Computers in the School Curriculum (A Collection of Essays).
Ediger, Marlow
[1982], 44p.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Collection (020); Position Paper (120)
Major Descriptors: *Computer Uses in Education; *Curriculum Development; *Microcomputers; *Word Processing

The nine essays in this collection examine various issues regarding the utilization of computers in the school curriculum, including the selection of objectives, learning activities and appraisal procedures in curriculum development; providing for individual differences among learners; staff development; behaviorism as an emphasis for programmed instruction; mathematics lessons emphasizing drill and practice, problem-solving, and gaming; software selection to assist learner goal attainment; word processing to improve learner writing skills; and the need for teachers and supervisors to study, appraise, and ultimately implement vital strands from diverse philosophical schools of thought. The individual essays are entitled: "The Word Processor in the Curriculum Today"; "Computer-Assisted Instruction and the Learner"; "Inservice Education and the Computer"; "Computers: Programmed Learning versus Problem Solving"; "Experimentalism and the Computer"; "Microcomputers in the Mathematics Curriculum"; "The Microcomputer in the Classroom"; "The Word Processor in the Curriculum"; and "Philosophy and Goals in the Curriculum." References are provided for most of the essays.

ED282714
Apple Treats. BASIC Classroom Computing Featuring Hands-On Activities and Pencil/Paper Fun.
Embry, Lynn
1985, 100p.
Available from: Good Apple, Inc., P.O. Box 299, Carthage, IL 62321-0299 ($7.95 GA662).
EDRS Price—MF01 Plus Postage. PC not available from EDRS.
Document Type: Instructional Material (051); Teaching Guide (052)
Target Audience: Practitioners; Students
Major Descriptors: *Computer Literacy; *Computer Science; *Elementary School Science; *Programing; *Science Activities; *Science Instruction

Developed as an introduction to computer programming using an Apple microcomputer, this document presents teachers and students with: (1) essential vocabulary used in the BASIC language; (2) syntax; and (3) programming techniques. Simple hands-on activities designed to guide the learner through beginning BASIC programming skills and fundamental graphics are provided in the first half of the book. The second half contains activities, word puzzles and games, designed to evaluate student progress and reinforce the learning of computer programming. The document is designed to be used sequentially and many of the activities are printed in a reproducible format. Included in the back of the book are a summary of basic commands and keywords, a glossary, an answer key to the quizzes and activities, and an index.

ED277354
Educational Technology: Local Planning Guide.
Georgia State Dept. of Education, Atlanta.
1985, 172p.
EDRS Price—MF01/PC07 Plus Postage.
Document Type: Non-classroom Material (055); Project Description (141)
Target Audience: Practitioners
Major Descriptors: *Computer Uses in Education; *Educational Planning; *Program Development; *School Districts

Developed by the Educational Technology Task Force of the Georgia Department of Education, this guide was designed to help educators plan for computer use in schools. This step-by-step approach for the planning and implementation of educational technology was written from the standpoint of an entire school system, but the principles described apply equally well to individual schools, individual classrooms, or to any academic or administrative division. A brief introduction provides background information, which is structured in six major stages: (1) Conducting Preliminary Activities; (2) Setting Directions; (3) Integrating Technology into Curriculum, Classroom Management, and School Activities; (4) Selecting Software and Hardware; (5) Planning for Staff Development; and (6) Organizing and Implementing for Success. Appendices and tables include a job description for the Technology Coordinator position; samples of philosophy and work statements, survey instruments, and software evaluation forms; an introduction to Georgia's plan for educational technology; descriptions of computer applications; forms for faculty computer competency, hardware, and software/courseware inventories; needs assessment questions and tools; resource lists; an outline for a local staff development program; and software copyright information. A bibliography is included.

ED284531
Costs, Effects, and Utility of Microcomputer-Assisted Instruction. Technical Report, Number 1.
Hawley, David E.; And Others
Nov 1986, 50p.
Available from: Publication Sales, Center for Advanced Technology in Education, 1787 Agate Street, Eugene, OR 97403 ($4.50 plus $2.00 shipping and handling on billed orders. Make checks payable to ERIC/CEM Publications).
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Research Report (143)
Target Audience: Policymakers
Major Descriptors: *Computer Assisted Instruction; *Cost Effectiveness; *Costs; *Instructional Effectiveness; *Intermode Differences; *Microcomputers

Designed to develop procedures and acquire information to help decision-makers establish policies for the use of microcomputers for computer-assisted instruction (CAI), this study involved the following steps: (1) a school-based research project was conducted to determine the costs and effects of microcomputer-assisted instruction; (2) an analytical procedure for assessing the cost-effectiveness of microcomputer-assisted instruction and traditional instruction was developed; and (3) this analytical procedure was applied to the costs and effects obtained in this study. Subjects were 41 grade 3 students and 38 grade 5 students in a rural area of Saskatchewan, Canada, who were given a pretest to measure mathematics ability, mathematics attitude, and computer literacy. Students at each grade level were then randomly assigned to two groups: the control group

received traditional mathematics instruction, and the experimental group received adjunct microcomputer-assisted instruction. On the basis of the findings, it was concluded that the use of supplementary microcomputer-assisted instruction enhanced both the mathematics skills and level of computer literacy of the subjects in the experimental group; there was no significant difference between the effects of the two treatments on student attitudes toward mathematics; and the cost of adjunct microcomputer-assisted mathematics instruction was lower than previous estimates of costs for laboratory-based CAI and more cost-effective than traditional mathematics instruction in relation to the desired outcomes. Seventeen tables are included, 25 references are listed, and additional data are appended.

ED280454

The Use of Informatics in Education. Present Situation, Trends and Perspectives.

Hebenstreit, Jacques

United Nations Educational, Scientific and Cultural Organization, Paris (France). Div. of Educational Sciences, Contents & Methods of Education.

Mar 1986, 75p. Light print on some pages may affect legibility.

EDRS Price—MF01 Plus Postage. PC Not Available from EDRS.

Document Type: Historical Material (060); Review Literature (070); Position Paper (120)

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Developed Nations; *Developing Nations; *Microcomputers; *Teacher Education

This overview of the use of computers in education begins by tracing the history of the development of computer programs for instruction in three developed countries, the United States, the United Kingdom, and France. Significant research and programs, general trends, the current situation, plans, and problems in each of the countries are discussed, including statistics on the number of schools with computers, student usage, and the costs of programs. Ways in which computers have been introduced in schools in these countries are compared and differences in the strategies used are discussed. A more general discussion of the situation in other developed countries covers problems with hardware, software, teacher training, and evaluation of the effectiveness of computers for improving the educational process. A discussion of the use of computers in developing countries addresses similar problems in different cultural environments and educational systems. Policies and strategies for introducing computers in education at any level are also discussed, including policies for professional training, use of computers in schools, hardware, software, teacher training, and research. It is concluded that, although there is a definite danger of increasing the gap in level and quality of education between those countries that make massive use of computers in education and those that do not, the appropriate use of computers in developing countries can be a way of decreasing the gap. Of the seven sources listed in the bibliography, one is in English, one in Spanish, and five are in French.

ED275292

Implementation of Microcomputers into the Current K-12 Curriculum: A Critical Discussion of Issues.

Knupfer, Nancy N.

1986, 31p. Working paper, University of Wisconsin-Madison.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Review Literature (070); Project Description (141)

Target Audience: Practitioners

Major Descriptors: *Computer Assisted Instruction; *Computer Managed Instruction; *Curriculum Development; *Instructional Improvement; *Microcomputers; *Program Implementation

Arguing that computer science is not a survival skill although computer literacy may be and acceptance of computers definitely is, this paper recommends that any curricular changes involved in the implementation of computer education programs should adapt the computer to the larger educational goals of the schools, and separate the computer as a learning tool from the computer as the focus of study. The importance of the computer as a tool to enhance the learning process is noted, and it is suggested that the integration of computers into the existing curriculum to improve upon less productive modes of instruction is an exciting prospect. This paper briefly surveys the current uses of computers in education and reveals the scope of contemporary problems in this area, including curricular change and teacher attitudes. Some generalizations and qualifications about applications at all grade levels are outlined, followed by a discussion of an evolutionary approach to the incorporation of computers into the K-12 curriculum. Finally, this discussion suggests some limitations and hopes for the future, along with the implications for curriculum and instruction.

ED284261

Writing with Microcomputers in the Elementary Grades: Process, Roles, Attitudes, and Products. Education and Technology Series.

Larter, Sylvia; And Others

1987, 242p. For a French version of this publication, see ED 284 262.

Report No: ISBN-0-7729-2464-3
Available From: MGS Publication Services, 5th Floor, 880 Bay St., Toronto, Ontario, Canada M7A IN8 ($8.00).
EDRS Price—MF01/PC10 Plus Postage.
Document Type: Research Report (143); Serial (022)
Major Descriptors: *Computer Assisted Instruction; *Microcomputers; *Writing Instruction; *Writing Skills

A study examined and compared writing with and without microcomputers in the elementary schools. Specifically, the study examined (1) how the products of writing instruction with a computer differ from the products of traditionally taught writing, (2) the process of teaching writing, (3) teacher-pupil roles when pupils are writing, (4) teacher attitudes toward writing, (5) student attitudes toward writing, and (6) reading scores of pupils who write with microcomputers as compared with those of pupils who do not use microcomputers. Subjects, 90 teachers and 180 students from grades 1, 3, and 6 in the Toronto (Canada) public schools, were divided equally into three control and three experimental groups, according to grade level. The experimental groups used microcomputers for writing while the control groups used traditional methods. Findings indicated that elementary school children, particularly those in the primary grades, increased and improved their writing by using microcomputers and that such results could be obtained in a classroom in a six-month period with only a few computers. Findings also indicated that, for the students, the process of writing with microcomputers differed from the process of writing with traditional tools, and that it differed by grade level. Results suggested that the use of microcomputers for teaching writing in the elementary grades is compatible with the philosophy of teaching writing encouraged by the Ontario Ministry of Education and the Language Study Centre of the Toronto Board of Education. (References, six appendixes, and 32 figures are attached.)

ED277350
Tools for Tomorrow. Educational Technology in Southern Classrooms.
Levy, Susan
FORESIGHT: Model Programs for Southern Economic Development, v4 n1 p1-12 Sum 1986
1986, 16p.
Available From: Southern Growth Policies Board, PO Box 12293, Research Triangle Park, NC 27709 ($2.00).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Journal Article (080); Position Paper (120); Project Description (141)
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Educational Technology; *Equal Education; *Microcomputers; *Telecommunications

The quality of education received by children in the southern states will be greatly impacted by technological change, which will present educators with both unprecedented opportunities and substantial risks. As the four model programs described in this paper illustrate, advances in telecommunications and computer hardware and software can be used to great advantage by school systems. Through telecommunications technology, students in five rural high schools in North Carolina have recently completed a course in applied physics and vocational education that had never been offered in their schools before; three low income, predominantly minority middle schools in Mobile, Alabama, eastern rural North Carolina, and downtown Atlanta, Georgia, are participating in Project MICRO, a program designed to overcome disparities in access to computers; special needs students in Louisiana can use specially adapted microcomputers to improve their leisure and learning skills and boost their self-esteem; and the computer literacy program in Houston, Texas, emphasizes access to microcomputers and training in their use for minority and low income students and their families. On the risk side, introducing technology into the classroom can be costly, alienate teaching staff, and widen the gap between advantaged and disadvantaged students. The development of effective curricula relying on the new technologies can benefit the entire community, while careful long-range planning can prevent the negative outcomes noted above.

ED281871
Computer Learning Environments and the Study of Individual Differences in Self Regulation.
Mandinach, Ellen B.
[Apr 1987], 19p. Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Cognitive Style; *Computer Assisted Instruction; *Learning Processes; *Learning Strategies; *Metacognition

Computers provide particularly powerful environments in which to examine individual differences in cognitive processing and learning outcomes. The computer's capacity to collect and record response protocols facilitates detailed process analysis. Such analyses contribute to increased understanding of how individuals

differ in their ability to profit from instruction and learn most efficiently. The cognitive engagement processes students use are critical in the computer environment as well as in a variety of other learning environments. The cognitive engagement processes used by more or less successful learners in one computer environment were investigated in a group of 48 California junior high school students using a computer problem-solving game called Wumpus. Results indicated that protocols of more and less successful students were distinguishable by the spontaneous use of self-regulated learning processes. Successful students were able to shift levels of cognitive engagement in response to computer stimuli and feedback. Implications for the measurement of self-regulatory processes in computer learning environments were discussed. Two other research projects, the Systems Thinking and Curriculum Innovation (STACI) project and the Structural Thinking Experimental Learning Laboratory with Animation (STELLA), are also described.

ED277347

Microcomputers in the Classroom: Trojan Horse or Teacher's Pet?

Olson, John K.

Jun 1984, 38p. Paper presented at the Annual Meeting of the Canadian Society for the Study of Education (Guelph, Ontario, Canada, June 1-4, 1984).

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Review Literature (070); Project Description (141); Conference Paper (150)

Target Audience: Researchers

Major Descriptors: *Computer Assisted Instruction; *Microcomputers; *Science Teachers; *Teacher Attitudes; *Teacher Role; *Teacher Student Relationship

Arguing that curriculum developers need to seek a better understanding of existing classroom orders before advising reform through new technology, this paper presents a review of research on the effects of microcomputers on the stabilities of classroom practice and describes a pilot study currently underway at Queens University in Ontario to determine what science teachers think about the impact of microcomputers on classroom management. The research reviewed is discussed within a framework that takes the teacher's perspective seriously and asks questions about how new technology will be used in the schools. Issues addressed by this research include the elements of student collaborative learning; the roles of the teacher, print materials, and teacher guides; classroom disruption due to the way computer-assisted instruction (CAI) materials are organized; and changes in student-teacher relationships. Data collection procedures for the two strands of the pilot project are also described, i.e., a projective test and audiotaped interviews to explore teachers' thinking on microcomputer use in the classroom, and videotaped class activities to show how microcomputers are actually being used. Detailed descriptions of interviews with a sixth grade science teacher and an eighth grade science teacher are provided, and a discussion of some of the concerns voiced by these two teachers concludes the paper.

ED275314

The Computer: Extension of the Human Mind III. Proceedings of the Annual Summer Computer Conference (3rd, Eugene, Oregon, August 1-3, 1984).

Oregon Univ., Eugene. Center for Advanced Technology in Education.

Aug 1984, 162p. For proceedings of conferences held in 1982, 1983, and 1985, see ED 219 859, ED 239 397, and ED 265 831.

Available from: Proceedings, Center for Advanced Technology in Education, 1787 Agate Street, University of Oregon, Eugene, OR 97403 ($10.00).

EDRS Price—MF01 Plus Postage. PC Not Available from EDRS.

Document Type: Conference Proceedings (021); Position Paper (120); Project Description (141)

Major Descriptors: *Cognitive Psychology; *Computer Uses in Education; *Information Technology; *Microcomputers

The 13 conference presentations in this proceedings are arranged by general and special interest sessions and listed within each session in the order in which they were presented. These papers are: (1) "Key Issues for the Near Future" (David Moursund); (2) "Educating with Computers: Insights from Cognitive Psychology (and Video Games)" (Morton Ann Gernsbacher); (3) "Information Technology and Education: Public Policy and America's Future" (D. Linda Garcia and Fred W. Weingarten); (4) "Local Area Networks for Microcomputers in Education" (Philip K. Piele); (5) "Managing the Introduction of Computers into Education" (S. J. Thiessen); (6) "So What's a School District Computer Education Coordinator To Do?" (Greg Woods); (7) "Interactive Video and the Mentally Handicapped: A Research and Demonstration Program" (Philip Browning and Gary Nave); (8) "Overview of the Tri-County K-12 Computer Education Course Goals Collection" (Richard Ricketts); (9) "Equity Issues in Computer Use" (Sharon Franklin); (10) "Forget the Students, What Can Computers Do for Me?" (Richard C. Adams); (11) "Interactive Video in Education" (Ron Thorkildsen); (12) "Computing History to Use in Your Classroom" (Doris K. Lidtke); and (13) "Computers in Education Program Development at the District and Elementary School Level" (David Novick). Several of the papers provide references and/or additional sources of information.

ED280460

Ideas for Integrating the Microcomputer with Elementary Instruction. Activity Descriptions from the Forum Series (Portland, Oregon, October-November, 1986).

Pollard, James

Nov 1986, 39p. A product of the Technology Program.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Conference Proceedings (021); Teaching Guide (052)

Target Audience: Practitioners

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Learning Activities; *Microcomputers; *Student Projects

In October and November 1986, the Northwest Regional Educational Laboratory (NWREL) sponsored a series of forums for elementary teachers to share ideas about the use of computers in the classroom. During the forums, each teacher took from 15 to 30 minutes to explain how he or she taught the lesson that was being shared. The informality of the sessions allowed interaction among the participants throughout the presentations, with many ideas spinning off from the one being presented. Applications described included the use of: (1) a word processor, Magic Slate, to write and illustrate a book; (2) a database management system, PFS:File, for multicultural education; (3) a computer simulation, Island, to study geography; (4) Mastertype, courseware in an arcade game format, for keyboard instruction; (5) the programming language, Logo, to teach basic programming skills; and (6) a database program, Book Worm, to do online book reports. Specifics such as grade, ability levels, and hardware arrangement are given for each project. Brief descriptions are also provided for each project, and additional materials are included for PFS:File and Book Worm.

ED278148

Kids, Computers, and Beyond: The Hemet Experience in Technology-Based Education and Office Management Systems.

Robinson, Jack

Nov 1986, 19p. Paper presented at the Annual Meeting of the California Educational Research Association (65th, Marina del Rey, CA, November 13-14, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Conference Paper (150); Project Description (141)

Target Audience: Practitioners

Major Descriptors: *Computer Assisted Instruction; *Computer Uses in Education; *Decision Making; *Educational Technology; *State Standards

This paper describes the steps taken and the discoveries made by one school district in its implementation of computer-based education and office management systems. Topics covered include: (1) the formation and responsibilities of the Instructional Technology Committee (ITC) in budgeting, purchasing, and planning staff development programs; (2) the educational philosophy and goals established by the ITC; (3) sources of funding for equipment and implementation; (4) methods of involving parent organizations; (5) the development of school computer labs to meet the needs of individual schools; (6) the implementation of Technology in the Curriculum (a program developed by the California State Department of Education); (7) computer-based management of an academic student standards assessment program; (8) recommendations for the successful implementation of an IBM Office Management system (IBM XT and AT computers); (9) planning staff computer training programs; and (10) advice to other school districts planning the implementation of computer-based education and office management systems.

ED275309

Computers in Schools. A Strategic Planning Symposium (Edmonton, Alberta, Canada, January 29-31, 1986).

Romaniuk, Gene, Ed.

Mar 1986, 280p.

EDRS Price—MF01/PC12 Plus Postage.

Document Type: Project Description (141); Conference Proceedings (021)

Major Descriptors: *Computer Uses in Education; *Curriculum Enrichment; *Design Requirements; *Educational Facilities Planning; *Educational Planning; *Microcomputers

This report of a symposium for educators in the province of Alberta provides background information on the symposium, a set of six major recommendations made by the participants, reports from the working groups to which participants were assigned; and the text of 12 papers presented at the meeting. The nine chapters of the report document the deliberations of the working groups: (1) Designing and Equipping Instructional Facilities; (2) Software/Courseware Evaluation, Development and Acquisition; (3) Teacher Development; (4) Instructional Networking; (5) Wide-Area Networking; (6) The Integration of Computers into the Elementary Curriculum; (7) The Integration of Computers into the Secondary Curriculum; (8) Administrative Uses of Computers; and (9) The Use of Computers in Business Education. The appendices, which make up the larger

part of the report, contain the keynote presentation by David King and 11 other presentations: (1) "Designing and Equipping Instructional Facilities" (John E. Percevault); (2) "Planning and Designing School Computer Facilities" (Walter Hepler); (3) "Software/Courseware Evaluation, Development and Acquisition" (David Wighton); (4) "Legal Aspects of Software/Courseware Acquisition and Use" (Judith Anderson); (5) "Teacher Training: A Preliminary Discussion Paper" (Dale Burnett and Hank Boer); (6) "Instructional Networking in the Classroom" (Milt Petruk); (7) "Wide Area Networking in Alberta Schools" (Rick Bell); (8) "Elementary Computer Education" (Walter Savill); (9) "Computers in Schools, Strategic Planning Newsletter" (David Moursund); (10) "Administrative Uses of Computers" (Ralph Schienbein); and (11) "The Use of Computers in Business Education in Alberta" (Sharon Prather).

ED281487
Teaching and Learning in a Microelectronic Age.
Shane, Harold G.
1987, 96p.
Available From: Phi Delta Kappa, PO Box 789, Bloomington, IN 47402 ($4.00).
EDRS Price—MF01/PC04 Plus Postage.
Document Type: Book (010); Review Literature (070); Position Paper (120)
Major Descriptors: *Computer Uses in Education; *Educational Change; *Science and Society; *Technological Advancement

General background information on microtechnologies with implications for educators provides an introduction to this review of past and current developments in microelectronics and specific ways in which the microchip is permeating society, creating problems and opportunities both in the workplace and the home. Topics discussed in the first of two major sections of this report include educational and industrial impacts of the computer and peripheral equipment, with particular attention to the use of computers in educational institutions and in an information society; the use of robotics, a technology now being used in more than 2,000 schools and 1,200 colleges; the growing power of the media, particularly television; and the importance of educating young learners to cope with sex, violence, and bias in the media. The second section addresses issues created by microtechnologies since the first computer made its debut in 1946; redesigning the American educational system for a high-tech society; and developing curriculum appropriate for the microelectronic age, including computer applications and changes at all levels from early childhood education to programs for mature learners. Appended are a 91-item selected bibliography and digests of 18 education reform reports published from 1983 through 1986.

ED275394
Microcomputers, Education, and Children. Proceedings of the National Conference (Nashville, Tennessee, September 24-28, 1984).
Tennessee State Univ., Nashville. Center for Training and Technical Assistance.
Sep 1984, 76p. Printed on colored paper.
Available from: Center for Training and Technical Assistance, Tennessee State University, 10th and Charlotte Avenue, Nashville, TN 37203 ($28.00).
EDRS Price—MF01 Plus Postage. PC Not Available from EDRS.
Document Type: Position Paper (120); Research Report (143); Conference Proceedings (021)
Major Descriptors: *Computer Uses in Education; *Curriculum Development; *Educational Improvement; *Microcomputers

The topics of the 17 papers included in this proceedings are: (1) enriching and empowering young children's learning with microcomputers; (2) a program designed to make all students computer literate who complete the eighth grade in Tennessee schools; (3) how school systems should purchase microcomputers; (4) a team approach to microcomputer curriculum development; (5) ways in which a curriculum in BASIC programming could be used to develop skills that would have effects in other academic areas; (6) enhancing creativity through new technology; (7) computer learning environments and critical thinking; (8) aspects of matching the child, microcomputer, software, and manipulatives; (9) curriculum materials and activities to precede and accompany a child's earliest experiences with computers; (10) enhancement of basic skills of disadvantaged children by providing access to computers in the classroom; (11) young children's acquisition of keyboarding skills; (12) the use of computer assisted instruction with the physically handicapped student; (13) aspects of the physical environment to consider when integrating computers into classrooms; (14) computer camp experiences for the young child; (15) Logo and microworlds for children; (16) implementing Logo in classrooms; and (17) the Electronic Forum on Young Children and Computers.

ED282528
Guidelines for Educational Computing in Virginia.
Virginia State Dept. of Education, Richmond. Div. of Instructional Media and Technology.
1984, 53p.

EDRS Price—MF01/PC03 Plus Postage.
Document Type: Non-classroom Material (055)
Target Audience: Practitioners
Major Descriptors: *Behavioral Objectives; *Computer Assisted Instruction; *Computer Literacy; *Educational Planning; *Staff Development

Designed to assist educators in planning for the use of microcomputers in their schools, this guide begins with a brief statement of a philosophy for the use of computers in education. The main positions expressed by this philosophy are that students must have the opportunity to learn about the role of technology in society and to acquire the knowledge and skills necessary to use the computer as a personal tool for learning, and that educators should use the computer to augment classroom instruction, to manage instruction more effectively, and to make possible the development of new curricula as well as new approaches to learning. An overview of educational uses of computers is provided and the Division of Instructional Media and Technology is briefly described. Minimum objectives and curricular models for computer literacy for students in Virginia are then presented, followed by guidelines for reviewing and selecting hardware and software. Objectives and suggestions for staff development programs are also provided for three levels of competencies: basic computer literacy, utilization of computers in instruction, and specialization in computer education. A list of available videotapes on computer literacy and the use of microcomputers in the schools use in connection with staff development activities concludes the guide.

ED280445
Computer Use in Primary School Education and the Trend of Educational Software: An Alaskan Perspective.
Wiget, Lawrence A.
25 Oct 1986, 24p. Paper presented at EDUTEC '86, the all Japan Annual Education Technology Research Congress (12th, Tokyo, Japan, October 25-27, 1986).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Project Description (141); Conference Paper (150)
Target Audience: Researchers
Major Descriptors: *Computer Software; *Computer Uses in Education; *Curriculum Guides; *Financial Support; *Microcomputers; *Research Needs

This examination of microcomputer use in primary schools begins by comparing the national data for elementary schools for 1984-1985 with the findings of a study of seven elementary schools in the Anchorage (Alaska) School District (ASD) which was conducted in the same year. Current research findings are cited in a discussion of assumptions about the instructional effectiveness of computers, and it is noted that the overall results of the ASD study failed to show that the computers have been either effective or ineffective in improving academic achievement. A description of the process used by ASD to integrate computers into the primary school classroom highlights coordination, including the development of a scope and sequence guide together with long range goals and objectives to ensure uniformity within the curriculum; provisions for inservice teacher training; provisions for maintenance and repair of the microcomputers; the acquisition of hardware and software; and a systematic approach to instruction. A brief description of teacher use of computers includes the names of software used for various purposes, and a discussion of trends in educational software focuses on applications programs for students and the use of CD-ROM for a district-wide union catalog of school library holdings. It is concluded that, although computers in the classroom are still in the experimental stage, they can be successfully implemented at the elementary level if adequate leadership, funding, and inservice training are provided.

ED283513
Microcomputer Education in an Elementary School: The Rhetoric vs. the Reality of an Innovation.
Woodward, Arthur; Mathinos, Debra A.
Apr 1987, 8p. Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Position Paper (120); Research Report (143); Conference Paper (150)
Target Audience: Researchers
Major Descriptors: *Computer Uses in Education; *Microcomputers; *Teacher Attitudes

In order to discover the extent to which the rhetoric surrounding computers in schools is matched by reality, a study of computer use and teacher acceptance was undertaken in a large upper elementary school (grades 4-6) in an affluent, semi-rural community near a major metropolitan area. The school was near the end of its five year instructional computer plan, which included an extensive inservice component consisting of summer computer literacy workshops, training of newly hired teachers, and training in specialized computer applications. Thirty-four teachers and two administrators completed a questionnaire on their computer use and attitudes toward computers. Logs were kept of student use of computers, documents relating to computer use

and policy were analyzed, teachers and administrators were interviewed, and teachers and students were observed using computers. Data analysis indicated that the microcomputer-based innovation has a long way to go before it could be claimed that computers are fully integrated into the school and curriculum. Three major problems are perceived by teachers: (1) limited amount of time in the school day; (2) teacher accountability for student performance on standardized achievement tests which do not include computer skills; and (3) limited availability of hardware. It is recommended that administrators act as mediators of the innovation to create a bridge that would allow teachers to move from very utilitarian, familiar computer applications to those that would truly effect fundamental change in how teachers teach and students learn.

ED282524

Designing Better Camels: Developing Effective Documentation for Computer Software.

Zacher, Candace M.

Feb 1987, 10p. Paper presented at the Annual Conference of the Association for Educational Communications and Technology (Atlanta, GA, February 25-March 1, 1987).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Classroom Material (050); Conference Paper (150); Test, Questionnaire (160)

Target Audience: Practitioners; Researchers

Major Descriptors: *Computer Software; *Technical Writing; *Writing Processes

This guide to the development of effective documentation for users of computer software begins by identifying five types of documentation, i.e., training manuals, user guides, tutorials, on-screen help comments, and troubleshooting manuals. Six steps in the development process are then outlined and briefly described: (1) planning and preparation; (2) analysis and organization; (3) development and writing; (4) production; (5) distribution; and (6) maintenance. Organization of the documentation by tabs, sections, and subjects is recommended, and the advantages of setting standards are listed. The need for practical, flexible standards and commitment to them by all involved is emphasized. Checklists of design criteria, writer's rules, and design activities are also provided. Lists of advantages of effective documentation for the developer and for the user and learning principles to be considered in developing documentation are attached.

SPECIAL APPLICATIONS

Computer Literacy

ED274530
Microcomputers: A Course for Parents and Children. For Use with Personal Computers. No. 657.
Boe, Thomas; And Others
1 Sep 1983, 85p.
EDRS Price—MF01/PC04 Plus Postage.
Document Type: Non-classroom Material (055); Teaching Guide (052)
Target Audience: Practitioners; Teachers
Major Descriptors: *Computer Literacy; *Elementary School Science; *Microcomputers; *Parent Child Relationship; *Science Activities; *Science Instruction

This booklet is designed to supplement a short course on microcomputers for parents and their middle school children. The course activities are designed to increase the computer literacy of the participants and also to provide an opportunity for parents and children to spend time with each other. The course is intended to take place during a five-week period, with one session taught each week, preferably on Saturday mornings. Using a predict-and-discover approach, the sessions start with simple BASIC commands and move into such programming concepts as input, output, looping, and branching. Instruction is also provided on computer uses, peripherals, and software. The materials in the document include objectives, materials lists, and a description of the teaching activities for each of the five sessions. Also included are reproducible handout sheets which are to be used during the sessions. The appendices contain: (1) a final test (with the answer key); (2) a graduation certificate; (3) a glossary of microcomputer terms; (4) reference sheets for Apple and Atari computers; and (5) a list of services offered through the Minnesota Educational Computing Consortium.

ED284535
A Critique on the Computer Literacy Curriculum in Alberta, Canada.
Chapman, Shirley
[1984], 20p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Evaluative Report (142)
Target Audience: Policymakers
Major Descriptors: *Computer Literacy; *Computer Science Education; *Curriculum Design

The organizational scheme of the 1984 Alberta Computer Literacy Curriculum and its appropriateness in relation to stated purposes, philosophy, rationale, and goals are examined in this paper, using the junior high school curriculum for illustration. Several conclusions are drawn: (1) the curriculum is well organized; (2) its basic organizational scheme is one of centers (topics) and elements (dimensions of awareness, function, and critical understanding of the topics); (3) objectives correspond to the organizational scheme and advance in difficulty; (4) the organizational scheme is appropriate to the curriculum; (5) flexibility of time is given to the experienced versus the inexperienced student; (6) hands-on computer experience is provided for each student; (7) skills, knowledge, and attitude development are included in the program; and (8) the rationale and philosophy are incorporated into the curriculum. Impending changes in the curriculum are described, and five charts depicting various aspects of the curriculum are appended.

ED279613
Turning Teachers on to Microcomputers: Results of a Two-Year Staff Development Project.
Cicchelli, Terry; And Others
Nov 1984, 15p. Paper presented at the Annual Meeting of the National Council of States on Inservice Education (Orlando, FL, November, 1984).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Conference Paper (150); Research Report (143)
Major Descriptors: *Computer Literacy; *Faculty Development; *Learning Strategies; *Microcomputers; *Teacher Attitudes

This paper reports the findings of a two-year computer literacy inservice project for high school teachers in various departments. A description is given of strategies used in designing and developing an inservice education program within a particular social system that had its own norms and expectations about learning technology. Theorizing that fear of change and failure are frequently factors in computer education, the program developers were guided in planning by considerations of the teachers' environment as well as personal dimensions being experienced by individual teachers, including cognitive, behavioral, and affective dimensions. The Stages of Concern Questionnaire was used to collect data on teacher concerns over the two-year

period. This instrument was used to assess teacher needs before and after the inservice project. An adapted version of the Levels of Use focused interview helped to identify what users and non-users were doing with microcomputers. Complementing these instruments, numerous conferences with school administrators assured a supportive environment for the learners. This included released time, use of consultants, available equipment and software, and intensive "hands-on" intervention. A description is given of how the learning project was organized, and the progress of the learners is depicted graphically. Conclusions and recommendations are offered.

ED278505
Effect of Typing Skills on Computer Skills in Elementary School Students.
Elam, Linda Marie
19 Dec 1986, 54p. Master's Thesis, Biola University.
EDRS Price—MF01/PC03 Plus Postage.
Document Type: Thesis (042); Research Report (143)
Major Descriptors: *Computer Literacy; *Elementary School Students; *Junior High School Students; *Outcomes of Education; *Typewriting

To evaluate the effect of typing instruction on knowledge about computers, students from grades 4 through 8 attending computer literacy and programing classes were assigned to either a treatment condition providing 4 weeks of typing instruction or a control group receiving no typing instruction. It was hypothesized that pretest-posttest gains of students receiving typing instruction would be significantly greater than those of control group members. The pretest-posttest contained questions relating to care of computers, computer use, applications, and programing. In computer literacy and programing classes students were taught the components of a computer, received instruction on the care and use of computers and diskettes, and were introduced to programing in BASIC. In typing classes, treatment group students received instruction and practice in the correct finger positions for touch typing and were taught the typing game "PAWS+." Treatment group students worked at this game to increase their ability to locate letters without looking at the keyboard. Findings did not support the research hypothesis, but 4th, 5th, and 6th grade scores and overall mean scores indicated that the treatment group students gained more than the corresponding control groups. Appendices provide a survey of computer experience, the computer knowledge pretest-posttest, and a diagram of a keyboard.

ED280436
Exploratory Computer Literacy Curriculum Guide, Grades 7-8. Resource Unit.
Hawaii State Dept. of Education, Honolulu. Office of Instructional Services.
Jun 1986, 127p. For the curriculum guide, see ED 264 835.
EDRS Price—MF01/PC06 Plus Postage.
Document Type: Teaching Guide (052); Project Description (141)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Literacy; *Computer Software; *Learning Activities; *Microcomputers; *Models

This resource unit, an addendum to *The Exploratory Computer Literacy Curriculum Guide, Grades 7-8*, is designed to provide teachers with guidelines and classroom computer activities for integrating computer literacy into the curriculum. An overview of the guide is given in the introduction, which notes that the materials reflect the teacher-developers' own environment variables such as school size, student characteristics, accessibility to microcomputers, and teaching style. A section on classroom management offers suggestions for effective curriculum implementation and addresses the operation of the computer laboratory, classroom demonstrations, use of the computers, diskette management, and copyright laws concerning microcomputer software. A broader perspective on implementation within the total school setting is provided in a section on integrating the computer literacy program into the curriculum, which addresses such topics as administrative support, a school computer coordinator, schoolwide planning and cooperation, and resources and faculty workshops. Five models are proposed as alternatives for delivering computer literacy instruction in the secondary schools. Sample activities are provided for the language arts, mathematics, science, and social studies, each of which includes course content objectives and guidelines in the following categories: subject, student expectations, instructional mode, prerequisites, classroom management, materials, activity time, teacher preparation, and sequence of activities. Resources include lists of recommended software and additional teaching aids.

ED277343
Introduction to Computing Course Guide.
Hawaii State Dept. of Education, Honolulu. Office of Instructional Services.
Mar 1986, 91p.
EDRS Price—MF01/PC04 Plus Postage.
Document Type: Teaching Guide (052); Project Description (141)

Target Audience: Teachers; Administrators; Practitioners

Major Descriptors: *Class Activities; *Classification; *Computer Literacy; *Learning Activities

Developed to aid intermediate-level teachers and principals in initiating and developing computer literacy programs for their students, this document is a guide for the development of a one-semester course—Introduction to Computing—for the seventh and eighth grades. The course is designed to provide opportunities for students to develop computer literacy skills and understanding through classroom instruction in combination with hands-on computer experiences. The guide includes a sample course schedule of topics to be covered each week during the semester, a course description, course management considerations, sample activities, and suggested resources. The sample activities, which reflect the four instructional modes of the computer as tool, tutor, tutee, and topic, include Getting Started, Word Processing, Database Privacy, Computer Crime and Ethics, Databases, Electronic Spreadsheets, and Graphics Programming. The course description includes course objectives, student prerequisites, and materials needed. Suggested resources include both textbooks and software. The Taxonomy of Goals, Objectives and Student Expectations for Exploratory Computer Literacy, Grades K-12 is appended.

ED279309

Computer Education in Iowa Schools. Multicultural Nonsexist Education.

Iowa State Dept. of Public Instruction, Des Moines.

Jun 1986, 21p.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Teaching Guide (052); Test, Questionnaire (160)

Target Audience: Practitioners

Major Descriptors: *Computer Literacy; *Educational Legislation; *Equal Education; *Multicultural Education; *Self Evaluation (Groups); *Sex Fairness

Designed for use by local curriculum committees who are implementing computer education components of their school districts' multicultural, nonsexist education plans, this guide provides a list of definitions, a discussion of the rationale and philosophy of multicultural, nonsexist education, and the text of the legal authority for the use of such an approach by school districts. Four goals are suggested as a model for this type of program, and each goal is accompanied by a set of objectives specifically pertaining to computer education. A self-evaluation checklistis provided for use as a general guide in reviewing a program to determine how consistent it is with the basic concepts of multicultural, nonsexist education. Sections of the checklist relate to curriculum structure, curriculum content, instructional materials, and teaching strategies. An annotated bibliography lists 27 recommended titles for computer education teachers and a resource organization list provides the names, addresses, and telephone numbers of 18 agencies or persons that may provide assistance, ideas, and information to schools striving to implement multicultural, nonsexist computer education programs.

ED273270

Change, Implementation, Equity: A Model Design for a Computer Education Plan.

Knupfer, Nancy N.

1986, 80p. Working paper, University of Wisconsin-Madison.

EDRS Price—MF01/PC04 Plus Postage.

Document Type: Review Literature (070); Position Paper (120); Research Report (143)

Major Descriptors: *Change Strategies; *Computer Assisted Instruction; *Computer Literacy; *Equal Education; *Evaluation Criteria; *Program Implementation

Technological advances and market forces have spawned a microcomputer invasion of the schools, sparking renewed interest and enthusiasm in computers as educational tools. This advent of classroom computers is highly controversial and the question of benefits remains unanswered because of the wide variety of expectations about their educational uses. Poor planning and preparation coupled with scarce equipment causes haphazard, uncoordinated, inequitable implementation. Successful implementation of computer education must be planned thoroughly and flexibly; it must be completely grounded in the theoretical and practical dimensions of change, innovation, and implementation in the educational setting; and it must develop useful, practical evaluative criteria. Any plan of implementation must consider the substantive nature of computer education, the sociocultural aspects of the change, and the implementation process itself. This review of the salient literature on change, implementation, and equity in computer education concludes by suggesting a design procedure to plan for the implementation of computer education in a hypothetical school district. The design is presented as an outline of the questions to be answered, barriers to be overcome, and evaluation of the effectiveness of an educational computing program. A 64-item reference list is provided.

ED278360

Focus on Microcomputers in the Middle School.

Marlowe, Jean; And Others

1986, 35p.

Available from: Michigan Association of Middle School Educators, Michigan State University, College of Education, Room 419 Erickson Hall, East Lansing, MI 48824 ($2.50).

EDRS Price—MF01 Plus Postage. PC Not Available from EDRS.

Document Type: Teaching Guide (052); Position Paper (120); Project Description (141)

Target Audience: Practitioners

Major Descriptors: *Computer Uses in Education; *Educational Planning; *Microcomputers; *Middle Schools; *Program Implementation

Designed to provide useful information for middle school teachers and administrators involved in planning and implementing microcomputer programs in their schools, this focus paper begins with a brief discussion of the "who, what, when, where, and why" of microcomputers in the schools, followed by discussions of two types of relevant research: the effectiveness of computer-assisted instruction (CAI), and learning by middle school students. Descriptions of instructional applications discuss the microcomputer as the object of instruction, a tool of instruction, and a manager of instruction. Noninstructional applications for teachers are noted together with administrative and office applications, and guidelines for organization and management include a number of factors to be considered in the planning and implementation of the microcomputer program. The various groups that should be involved in inservice training are identified, as well as alternative approaches that can be used and the types of materials to be covered for the different groups. Comments about the impact and potential of microcomputer use at the middle school level conclude this paper. A reference list/bibliography lists 20 titles, and appended materials include (1) brief descriptions of six sample programs in Michigan schools; and (2) a resource list which includes 15 articles and books for educators, 10 organizations, projects, and resource centers; a periodical and 3 catalogs and directories; and 4 books for use by middle school students.

ED273683

A Framework for Assessing Computer Competence: Defining Objectives.

National Assessment of Educational Progress, Princeton, NJ.

[1986], 43p.

Available from: National Assessment of Educational Progress, Educational Testing Service, Rosedale Road, Princeton, NJ 08541 ($5.00).

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Research Report (143)

Major Descriptors: *Cognitive Objectives; *Computer Literacy; *Educational Assessment; *Educational Objectives; *Measurement Objectives; *National Surveys

Computer skills objectives have been developed for the 1986 National Assessment of Educational Progress (NAEP). These items will be administered to a large number of American students aged 9, 13, and 17 in grades 3, 7, and 11. For this first national assessment of computer skills, it was necessary to consider the existing expertise of school staff, the current curriculum, the rapidly changing nature of computer science, and educators' different definitions of computer competence. Generally, educators agree that students need an exposure to computing that enables them both to experience the power of computing and to use that power to solve significant and interesting problems. Measurement objectives involve both paper-and-pencil tests of cognitive ability, as well as the practical ability to use a computer to solve problems. Three categories of cognitive objectives include knowledge, operation, and problem solving and design. Eight applications areas include word processing, database management, laboratory instrumentation, telecommunications, graphics, music generation, spreadsheets, and models and simulations. Programming objectives involve elements of a language; structures of data and control; and program planning, design, and testing. A number of items are illustrated. Five items are also included to illustrate attitudinal objectives.

ED271105

Computers in Canadian Elementary Schools: Curriculum Questions from Classroom Practice.

Olson, John K.

Apr 1986, 47p. Paper presented at the Annual Meeting of the American Educational Research Association (70th, San Francisco, April 16-20, 1986).

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Position Paper (120); Conference Paper (150)

Target Audience: Researchers

Major Descriptors: *Computer Literacy; *Elementary School Teachers; *Inservice Teacher Education; *Microcomputers; *Teaching Methods

This paper discusses several interrelated issues that concern four Canadian elementary school teachers who expect to be asked to introduce computer literacy into existing curriculums in the near future. Topics addressed include: (1) how teachers fit computer instruction into their existing practices; (2) status of the subject in their school; (3) principal's attitude toward the educational value of computer awareness activities; (4) ways in which teachers actually use computers (computer awareness, programming, etc.); (5) methods of computer

education, including the "teach yourself" method; (6) student reactions to computer instruction, including specific software packages; (7) teacher opinion about the demands of teaching a separate computer subject; and (8) teacher needs, e.g., more time to prepare, adequate hardware, support personnel. Problems of integrating computer experiences into the curriculum are addressed and five questions are presented which illustrate the difficulty of establishing computer literacy courses in the elementary school. Finally, the topics of teacher education and preparedness are discussed, and an agenda for teacher education is proposed. It is suggested that teacher education and curriculum are closely tied, and that how the computer is conceptualized as a subject in the elementary school will have an important bearing on the agenda that is set for teacher education. A list of references is attached.

ED278867
Computer Literacy: An Instructional Unit.
Ratekin, Ruth; And Others
1985, 65p.
EDRS Price—MF01/PC03 Plus Postage.
Document Type: Teaching Guide (052)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Literacy; *Computer Oriented Programs; *Computers; *Computer Software; *Futures (of Society); *Office Occupations Education

This instructional unit on computer literacy is intended for use as a 9-week course meeting five days per week for 50-minute class periods. If tied to a 9-week course in keyboarding or combined with additional materials on programming or software applications, it could also be expanded into a semester course. The following topics are covered in the individual chapters: the role of computers in society; ways in which computers affect society (historical development of computers, their effects on quality of life, economic effects of computers, concerns arising from computer use, and rapid technological changes in business); the way in which computers work (system components, binary code, kinds of computers, and differences between hardware and software); procedures for using computers (operation of a computer system, techniques in analyzing and solving a problem through flowcharting, procedures for writing and executing simple programs coded in BASIC, introduction to other languages, and software applications); and career opportunities in areas using computer technology. Each chapter includes some or all of the following: objectives, an outline of the section's general content, teacher and student learning activities, and resources. A list of print and nonprint references concludes the guide.

ED273684
CAI: A Model for the Comparison and Selection of Integrated Learning Systems in Large School Districts.
Resta, Paul E.; Rost, Paul
Apr 1986, 21p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Conference Paper (150); Research Report (143)
Target Audience: Researchers
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Evaluation Criteria; *Instructional Systems; *Program Implementation

The Albuquerque (New Mexico) Public Schools conducted a three-year study of integrated computer-based learning systems, including WICAT, Dolphin, PLATO, CCC, and DEGEM. Through cooperation with the Education Consolidation Improvement Act Chapter 1 program, four large integrated learning systems (ILS) were purchased and studied. They were installed and implemented in 1984. Due to budget constraints, the PLATO program was dropped from the study. The DEGEM system will be evaluated during the second year of the project and is not included here. The primary application of the ILS was to provide Chapter 1 students with supplemental instruction in reading, language arts, and mathematics through computer assisted instruction (CAI). The evaluation compared the four systems' effectiveness. Aspects of the evaluation included the match between ILS, curriculum content, and standardized achievement test content; instructional and technical characteristics; documentation; management systems; diagnostic placement; programming; staffing and training; cost effectiveness; and student and teacher perceptions of value. Results indicated the CAI programs were under-utilized during their first year, largely due to staffing patterns. Mathematics impact was generally greater than reading. The importance of a full-time laboratory operator was repeatedly noted.

ED280442
The New 3 "R"s in Education.
Rodgers, Robert J.; Bonja, Robert

Nov 1986, 11p. Paper presented at the Annual Conference of the National Council of States on Inservice Education (Nashville, TN, November 21-25, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Position Paper (120); Project Description (141); Conference Paper (150)

Target Audience: Practitioners

Major Descriptors: *Change Strategies; *Computer Literacy; *Computer Uses in Education; *Educational Planning; *Teacher Role; *Technological Advancement

Implementing computers and other elements of high tech into the classroom involves sound visionary planning, a comprehensive, diverse group of educators, and on-going staff development. The computer should be used as a problem-solving tool in a variety of settings and applications, the ramifications of which demand that educators in all subject areas and at all levels be computer literate and able to utilize the computer appropriately as a problem-solving tool.If the "3 'R's"—Reaching Out, Revamping, and Retraining—are properly addressed, education can begin the task of infusing high tech into educational environments. "Reaching Out" involves extending the scope and number of the personnel involved with the infusion process and requires technology leadership, computer literacy, pilot programs, and progressive involvement. "Revamping" involves not only changes in the teacher's role and in curricula, but in the educational structure, and knowledge of computer applications will be essential. "Retraining" provides personnel with new skills and a better understanding of how to use existing skills to infuse high tech in various areas. Attention must be given to the commonality of processing data and the realization that the basis of learning is how we process information. The "New 3 'R's" are consistent with the findings of research on improving the quality of education in that they address and advocate the use of the computer and other high tech developments as creatively applied and appropriately integrated tools.

ED279304

An Investigation of Alternative Computer Inservice Programs for Elementary School Teachers.

Small, Marian; Haley, George

Jul 1986, 83p.

EDRS Price—MF01/PC04 Plus Postage.

Document Type: Research Report (143); Test, Questionnaire (160) Major Descriptors: *Computer Assisted Instruction; *Elementary School Teachers; *Inservice Teacher Education; *Teacher Attitudes; *Teaching Methods

A pilot study was undertaken to investigate alternative inservice programs for teachers that would minimize their anxiety about computers and assist them in integrating computers into their teaching practices. The complete staffs of four elementary schools participated, and each school tested a different approach: math-drill and practice; math-higher level skills; language arts-drill and practice; and language arts-higher level skills. Emphasizing the use of software packages and hands-on experience, the 10 inservice sessions were delivered to the participants at each school separately for an hour at a time. The data, collected through pre- and post-training inventories, questionnaires, and interviews, revealed that teachers were generally receptive toward computers and their uses, and negative about feelings of anxiety, exposing ignorance when using computers, and of being unprepared and slow in relation to computers. It was also found that administrative leadership and support were very important factors in the success of the inservice program. Data summaries are presented in nine tables, copies of the forms and questionnaires used are appended, and references are provided.

ED280443

Addressing the Challenges of Training Competent Trainers in Computer Literacy.

Stemmer, Paul M., Jr.; Carlson, Elizabeth Uzdavinis

Apr 1986, 12p. Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, April 20-24, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Project Description (141); Conference Paper (150)

Target Audience: Researchers

Major Descriptors: *Competency Based Teacher Education; *Computer Literacy; *Learning Modules; *State Programs; *Training Methods

This report on the TMT (Training Modules for Trainers) Project, part of the Special Discretionary Grant Program developed by the Michigan Department of Education (MDE) in response to the need for coordinated training activities, begins with a discussion of the emerging problem of upgrading teachers' computer literacy skills. A description of the project is then presented, including the establishment of five regional Software Evaluation and Training Centers to create training modules; the competency-based trainer-of-trainers model used for creating modules for both teachers and their trainers; seminars conducted to establish educational computing competencies; the TMT modules, including their format, their use with various audiences, and steps in their use; and a 3-day workshop conducted in April 1985 to give initial training and pilot five modules.

Preliminary observations of training sessions at different sites with participants from diverse fields of education are reported, noting the needs both for adaptation of the instructional materials for different groups, and for additional incentives to attract participants. It is concluded that the success of the modules is due to their relevance and currency, and that the project needs to encourage participation by providing a uniform format for sharing and discussing critical issues in training Michigan teachers in the best use of microcomputers. Two references are listed and an example of a computer conference session is appended.

ED282543
Model to Develop Computer Software Usage in Computer Literacy.
Stuckman, Ralph; Beams, Patricia
[1985], 9p. For a related document, see ED 276 416.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Research Report (143)
Target Audience: Researchers
Major Descriptors: *Adult Students; *Computer Literacy; *Computer Software; *Teaching Models

Developed in order to understand how learning theory can be applied to software application in the classroom, the learning model discussed in this paper is based on the assumption that the learner wants to learn, accepts a challenge, has a willingness to try software, and will become independent in choosing software and making it work. A hierarchy of software complexity developed through observation of students is identified that delineates four levels ranging from simple feedback programs at the lowest level through increasing learner control to utility programs. The following parts of the model are then discussed in the context of an adult computer classroom: (1) insight into students' knowledge and needs; (2) choosing appropriate software; (3) hands-on work; (4) establishing an appropriate level of challenge; and (5) sharing of experiences and results. Two footnotes and a five-item bibliography are included.

ED273265
The Computer and Its Functions; How to Communicate with the Computer.
Ward, Peggy M.
[1985], 20p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Instructional Material (051); Project Description (141)
Target Audience: Students
Major Descriptors: *Computer Literacy; *Computers; *Programing

A brief discussion of why it is important for students to be familiar with computers and their functions and a list of some practical applications introduce this two-part paper. Focusing on how the computer works, the first part explains the various components of the computer, different kinds of memory storage devices, disk operating systems, and the peripheral devices used to communicate with other computers or the outside world. The second part provides a brief overview of programming languages and programming procedures, which includes a review of advantages and disadvantages of the BASIC language and general guidelines for writing computer programs. Examples are given in BASIC, including programs for performing a bubble sort and a binary tree sort. Flow charts are provided for the two types of sort programs as well as explanations of some of the BASIC codes.

ED273255
An In-Service: Microcomputers and Their Practical Application Levels in the Educational Process.
Webb, Rosanna M.; Karr-Kidwell, P. J.
[1986], 15p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Non-classroom Material (055)
Target Audience: Practitioners; Teachers; Administrators
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Inservice Teacher Education; *Microcomputers; *Programing Languages

Intended for both preservice and inservice teachers at all levels, the inservice workshop detailed in this report focuses on the computer as an educational tool that can be utilized without gaining an expertise in the inner workings and technicalities associated with the machinery. Related equipment and terminology is introduced informally to facilitate the hands-on experience, but historical and technical aspects of the microcomputer are not covered. The 2-hour session described covers microcomputers and their practical applications for instruction. This session is organized according to the following topics: computer hardware and program disks (30 minutes); the computer as a practical tool for instruction (60 minutes); and using the computer creatively (30 minutes). Goals and objectives for the workshop are given: (1) teachers will be able to identify input-output devices associated with the operation of a microcomputer; (2) teachers will be able to identify each mode of computer-assisted instruction and name at least one classroom application for each;

and (3) teachers will be able to recognize some of the particular characteristics of three of the most common programming languages used in today's schools. Information on the content to be covered is provided for each topic, together with suggestions for handouts and/or activities; an annotated list of eight suggested readings is also provided. The concluding discussion notes the need for qualified personnel to assist teachers in areas covered in this workshop, and the need for ongoing education for teachers to improve their computer skills and alleviate their anxieties. Thirteen references are listed.

ED274644
Teacher Competencies and Training in the Area of Microcomputer Technology.
Worth, Maria Menconi; Worth, Charles E.
Mar 1984, 14p. Paper presented at the Annual Meeting of the National Council of States on Inservice Education (9th, Orlando, FL, November 16-20, 1984). Appendix A contains light, broken type.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Project Description (141); Conference Paper (150)
Major Descriptors: *Computer Literacy; *Individualized Instruction; *Inservice Teacher Education; *Microcomputers; *Program Development
This paper presents possible strategies for training educators and teacher trainees in microcomputer technology. Particular emphasis is placed upon possible competencies, instructional sequences, and ways in which microcomputers can realistically be infused in education. In discussing teacher competencies, it is pointed out that it is essential to view the computer as part of a developmental sequence, and that training teachers to use the microcomputer can combine teachers and machines in more efficient and cost-effective ways if properly planned. In order for computer literacy instruction to be effective, it should be accomplished with non-threatening programming experiences, continuous hands-on time, time allotments for problem solving, sharing reactions, and providing opportunities for questions and discussion. An inservice model for individualized instruction in computer literacy for teachers is offered. This model is based upon a training sequence developed according to tested key elements of successful inservice training. Suggestions are made for how training programs might be revamped to incorporate microcomputers in teaching. An inservice contract is appended.

Copyright

ED278376
Shoplifting? No, Softlifting.
Bullock, Laura Chase
1986, 15p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Position Paper (120); Project Description (141)
Target Audience: Students; Practitioners; Teachers; Administrators
Major Descriptors: *Computer Software; *Copyrights; *School Policy
Directed at students, teachers, and administrators who illegally copy (pirate) software in the elementary and secondary schools, this paper clarifies the copyright law as it applies to software and suggests five reasons why school personnel break the law. Research is cited which indicates that the act of copying software penalizes software publishers and consumers as well as the software programmer. A district-wide policy is suggested as one way to eliminate "softlifting" in public school systems, and steps that must be taken before adopting such a policy are outlined. Also discussed are strategies for enforcing district policy for eliminating piracy of computer courseware at the K-12 grade levels.

ED282536
Ethical Issues in Computer Use. Article Reprints from *The Computing Teacher*, August/September 1984.
International Council for Computers in Education, Eugene, Oreg.
1985, 23p.
Available from: International Council for Computers in Education, University of Oregon, 1787 Agate Street, Eugene, OR 97403.
EDRS Price—MF01 Plus Postage. PC Not Available from EDRS.
Document Type: Serial (022); Teaching Guide (052)
Target Audience: Practitioners
Major Descriptors: *Computer Software; *Copyrights; *Ethical Instruction
Five articles and two columns reprinted from 1984 and 1985 issues of *The Computing Teacher* address various ethical and legal issues involved in computer use. In "A Question of Ethics," Larry S. Hannah and Charles B. Matus suggest guidelines for dilemma discussion in the classroom to address social and moral issues

and to help students to develop reasoning skills. "Computers, Kids and Values," by Stephen J. Taffee, examines several values clarification strategies that focus upon values and moral issues relating to computers or that use computer terms as a means of stimulating discussion of broader issues. Situations for a discussion activity to help students and teachers think about situations and various points of view involving computers are presented in "Ethics and Computer Use" by Kay Gilliland and Mattye Pollard, and David G. Novick answers questions about legal problems with software under the laws of the United States in two copies of his continuing column, "Computers, Software and the Law." In "Right and Wrong in Educational Computing," David G. Novick looks at the interaction of ethics and law in specific situations commonly encountered by computer educators, and Leroy Finkel discusses current interpretations of copyright laws as they affect back-up copies, multiple loading, and networks in "Software Copyright Interpretation."

ED279329
What Educators Should Know about Copyright. Fastback 233.
Helm, Virginia M.
1986, 53p.
Available from: Phi Delta Kappa, Eighth and Union, Box 789, Bloomington, IN 47402 ($.90 for single copies; quantity discounts available).
EDRS Price—MF01/PC03 Plus Postage.
Document Type: Classroom Material (050); Legal Material (090)
Target Audience: Practitioners
Major Descriptors: *Audiovisual Aids; *Computer Software; *Copyrights; *Reprography; *School Libraries; *Videotape Recordings
Because so many educational materials can be duplicated easily, it is imperative that educators be familiar with copyright regulations on the use of technological hardware and software. This fastback provides educators with information about the basic aspects of copyright regulations under the following headings: (1) The Copyright Law and Fair Use (Rights of Copyright Proprietors, Limitations on Exclusive Rights, Fair Use—Statutory Factors, Fair Use—Other Factors, and The Supreme Court and Fair Use); (2) Guidelines for Photocopying (Single Copying for Teachers and Researchers, Multiple Copies for Classroom Use, Prohibited Copying, Permission from Publishers, Copying Music, and Photocopying by Library Staff); (3) Computers and Copyright (Copyright and Software Use, Other Questioned Uses, and School Libraries and Computer Software); (4) Copyright Law and Audiovisual Materials (Permissible Uses, Prohibited Uses, Videotapes—The "For Home Use Only" Warning, School Libraries and Videotapes, and School Libraries and Other Audiovisual Materials); (5) Videotape Recorders—Off-Air Taping (Guidelines for Taping Commercial Broadcasts, Guidelines for Taping Public Broadcasting Service Programs, and Television Broadcasts Taped by Teachers); (6) Live and Transmitted Performances; and (7) Penalties for Infringement of Copyright. Twelve references are provided.

ED282553
To Copy: Right or Wrong?
Jordan, Dan
[1985], 6p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Legal Material (090); Position Paper (120)
Target Audience: Practitioners
Major Descriptors: *Computer Software; *Copyrights; *Federal Legislation
The Copyright Act of 1976, particularly the guidelines on fair use, did much to clarify the ambiguity of the 1909 Copyright Act in relation to new electronic media. Although some specific guidelines for teachers were included, it should be noted that microcomputers and disk drives were not yet widely available in 1976. Because experts were divided on what direction the protection of computer programs should take, Congress turned the question of copyright over to the National Commission on New Technological Uses (CONTU). Based on the recommendations of CONTU, the Copyright Act was amended in 1980 to define computer programs as literary works and to specify how a computer program may be used. Several points should be noted by educators: (1) it is illegal for anyone other than the owner of the program to make duplicate copies; (2) although a back-up copy may be produced, this is an archival copy and should not be used on another computer; (3) it is illegal to make multiple copies without a licensing agreement; (4) it is illegal to boot a series of microcomputers sequentially with a single disk; and (5) it is illegal to modify a program so that it may be accessed by multiple users via networking. Five references are listed.

ED282557
Library and Classroom Use of Copyrighted Videotapes and Computer Software.
Reed, Mary Hutchings; Stanek, Debra
1986, 5p.

Available from: American Library Association: Office of Rights and Permissions, 50 E. Huron Street, Chicago, IL 60611 (single copies free with self-addressed, stamped envelope).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Non-classroom Material (055); Legal Material (090)

Target Audience: Practitioners

Major Descriptors: *Computer Software; *Copyrights; *Legal Responsibility; *Videotape Recordings

Designed to provide guidance for librarians, this publication expresses the opinion of the legal counsel of the American Library Association (ALA) regarding library and classroom use of copyrighted videotapes and computer programs. A discussion of videotapes considers the impact of the Copyright Revision Act of 1976 on in-classroom use, in-library use in public libraries, and loan and duplication of videotapes. Computer software concerns addressed include purchase conditions generally, avoiding license restrictions, loaning software, archival copies, and in-library and in-classroom use. Finally, 19 questions about the use of videotapes or computer software in the library or classroom are presented, and the appropriate response to each situation is provided.

ED278097

Copyright Law: A Guide for Public Schools.

Steinhilber, August W.

1986, 129p. Pages 90-114 of appendices contain print too small for legible reproduction.

Available from: Publication Sales, National School Boards Association, 1680 Duke Street, Alexandria, VA 22314 ($10.00).

EDRS Price—MF01/PC06 Plus Postage.

Document Type: Non-classroom Material (055)

Target Audience: Policymakers; Practitioners

Major Descriptors: *Computer Software; *Copyrights; *Intellectual Property; *Legal Responsibility; *Reprography; *Technology

As schools increasingly take advantage of sophisticated technologies to enhance education, their need to understand basic copyright law becomes more urgent. This reference guide reviews the historical development of copyright, examines basic components, and analyzes exceptions to copyright owners' rights. Also covered are key areas such as photocopying, computer software, and off-air taping. Copyright provides authors with exclusive rights of reproduction, adaptation, publication, performance, and display of their materials. Authors may license one right for someone's use; this use does not extend to other rights. Copyright is not a property right granted in perpetuity. To promote the progress of the sciences and the arts, the 1976 Copyright Law made the duration of copyright the life of the author plus 50 years. Public domain and statutory exceptions covering fair use, school library use, performance, and public and instructional broadcasting are summarized. Questions and answers involving school applications are provided throughout the discussion and in the first appendix. Thirteen other appendices provide print, music, off-air taping, and interlibrary guidelines for educational institutions, along with federal forms for registering copyrights and sample school policies.

ED276090

Legal Liabilities and Professional Ethics Associated with the Use of Computerized Administrative and Instructional Technology in Education.

Wholeben, Brent Edward

12 Apr 1984, 26p.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Position Paper (120); Non-classroom Material (055)

Target Audience: Policymakers; Practitioners

Major Descriptors: *Computers; *Computer Uses in Education; *Ethics; *Legal Responsibility

The increasing availability and the highly variable quality of computer hardware and software make it imperative that school professionals become acquainted with issues of legal liability and professional ethics regarding the use of computers in education. This document explores problems associated with the lack of proper training of school professionals and suggests ways to minimize the potential for such problems. The document begins by defining liability, its three basic categories (nonfeasance, misfeasance, and malfeasance), and seven points of law that apply to personal injury or complaint liabilities. The document then lists (1) eight environmental influences on public and private educational policymaking that are hampering the adequate and appropriate use of computers in education, and (2) six misdirected uses of computers in the classroom. Next, the document considers nine general areas (case topics) of legal liability, gives examples of the kinds of computer misuse that could fall under each category, and shows how schools might be held liable for certain transgressions. The document then provides an 18-point checklist of activities for teachers and administrators to use in avoiding liability problems and concludes by arguing for more adequate and appropriate teacher and administrator training.

Counseling and Guidance

ED273858

Evaluating Computerized Career Information Systems for Use with Occupational Education Curricula. Final Report.

Bloch, Deborah Perlmutter; Kinnison, Joyce Ford

31 Aug 1986, 296p.

EDRS Price—MF01/PC12 Plus Postage.

Document Type: Research Report (143)

Major Descriptors: *Career Guidance; *Computer Assisted Instruction; *Information Systems; *Statewide Planning; *Vocational Education

A study was conducted to develop a model for a computer-based career information delivery system for use in New York State occupational education programs. The study included a literature review and five major substudies (information validation, user satisfaction, and vendor surveys; site visits to selected schools and agencies using career information systems; and a demonstration of career information delivery systems to a system review panel). The literature review yielded a list of 85 information components that was confirmed by the validation survey and enlarged by surveys of principals, counselors, students, and parents. Of the five career information systems presented by vendors, four were rated satisfactory and just passing. It was decided that the state should pursue the development and utilization of career information delivery systems. No single system should be adopted; however, all systems considered for use should undergo some sort of approval process. Activities such as staff development workshops and printed communications should be developed as soon as possible, and a career information delivery system coordinating office should be created to oversee the coordination and continued improvement of career information systems for vocational students. (Appendixes include copies of all the project surveys and related materials, correspondence, and forms.)

ED277929

The Computer Papers Psychological Services (Psychologists and Social Workers).

Clancy, Joseph C.

2 Oct 1986, 12p.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Position Paper (120)

Major Descriptors: *Computer Uses in Education; *Counseling Techniques; *School Psychologists; *School Social Workers

Computers are tools which school psychologists and social workers can use to assist and facilitate their professional functioning. At the elementary school level a computer could be shared between two schools in an area with visual and auditory privacy. In junior high schools, a portable computer would enable staff to conduct report writing, on-line interviewing, and related activities. At the senior high school level, computers equipped with modems could be used for accessing databases, instant test scoring, and networking. Computer mediated psychological services in schools fall into the categories of computer managed and computer assisted psychological services. Computer managed services are general purpose applications such as word processing. Computer assisted refers to special purpose software applications such as test scoring or interactive programs designed for cognitive and affective educational purposes. Use of computers in Learning Centers by psychological services staff may compromise confidentiality because of the Centers' public nature. The proper place for psychological services staff computer use is in their offices and workplaces. Inservice/staff development computer workshops should be tailored particularly to psychological services staff and should be presented in an informal and user-friendly manner. Guidelines for a sample workshop are included.

ED278851

SIGI PLUS at ETS: Development and Field Testing. Research Memorandum.

Norris, Lila; Shatkin, Laurence

May 1986, 22p.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Research Report (143); Test, Questionnaire (160)

Major Descriptors: *Adults; *Business; *Career Guidance; *Computer Oriented Programs; *Online Systems

A prototype corporate version of SIGI PLUS, a computer-based career guidance system, was developed by the Educational Testing Service (ETS) to serve the career counseling needs of adults in companies. It included a large store of nationally applicable occupational information that could be readily linked online to employer-provided company information. All information was integrated into a structure covering the process of career choice. The prototype system was field-tested at ETS. To expand the customizing options of the generic version, ETS programmed sections of the corporate version to enable users to select a SIGI PLUS occupational title and then see the full list of corporate jobs subsumed under the title and to make users aware of which

occupations are linked to company jobs. Evaluation participants (66 ETS employees) completed two questionnaires, one administered both before and after use of SIGI PLUS and one only after use, and then used SIGI PLUS. In general, participants liked SIGI PLUS and found it useful either in confirming present career plans or suggesting new ideas. It was helpful in self-assessment, increasing awareness of career opportunities, and developing positive feelings about the future. Ninety percent would recommend the system. Small positive differences in employee attitudes were noted. (Instruments are appended.)

ED274853
A Developmental Assessment Program for Special Needs Students in Junior High School. Guidance Project. Final Report.
Rader, Martha S.
2 Aug 1986, 48p.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Project Description (141)
Target Audience: Practitioners
Major Descriptors: *Career Counseling; *Career Development; *Computer Oriented Programs; *High Risk Students; *Learning Modules
A project was designed to provide career development activities for selected educationally at-risk seventh graders in two target junior high schools in the Roanoke (Virginia) City Public School System. The assumption was that career development activities that provide students with increased self-understanding, coupled with strategies involving the microcomputer and creative educational and counseling approaches, could assist in improving students' attitudes toward learning. Computers, selected software, and auxiliary equipment were purchased to aid in developing assessments of interests and values through computerized programs. A model for a computer-assisted assessment and a counseling program for seventh-grade students with special needs was developed and field-tested. A career development module was also designed that included selected guidance and counseling standards of learning in the personal/social and career development domains. (Appendixes include the developmental assessment model and career development module. The developmental model contains six activities; the career development module contains four. Each activity consists of the domain; title; student outcome; guidance/counseling objective, including standard of learning and skill; time requirement; a listing of necessary resources/supplies; and activity description. Student handouts are provided as needed. Career development module resource materials are also appended.)

ED275832
Bibliographies and Abstracts. Clearinghouse for Computer-Assisted Guidance Systems. Project LEARN—Phase II. Lifelong Education, Assessment, and Referral Network.
Ryan-Jones, Rebecca E.; And Others
Jul 1986, 159p.
EDRS Price—MF01/PC07 Plus Postage.
Document Type: Directory (132); Bibliography (131)
Target Audience: Counselors; Practitioners
Major Descriptors: *Career Guidance; *Computer Oriented Programs; *Computer Software; *Counseling Services; *Disabilities
This document contains four bibliographies and two sets of abstracts of materials on computer-assisted guidance systems. The first bibliography contains references pertaining to the use of the computer-assisted guidance system, DISCOVER. The cited documents are classified as theoretical foundations, evaluation and research reports, program descriptions, and supporting materials. The second bibliography contains references to the System of Interactive Guidance and Information (SIGI). Documents are classified in the same four categories as in the DISCOVER bibliography. The third bibliography, covering general issues, contains citations that address a variety of topics including the role of computer applications in providing counseling and career planning services, ethical issues, the implementation process, research and evaluation issues, and comparative descriptions of two or more systems. The fourth bibliography contains citations that address a variety of similar topics including the role of computer applications with a disabled population in providing counseling and career planning services. The final two sections, which make up the bulk of the document, contain 52 abstracts of materials concerning the DISCOVER system and 70 abstracts of materials about SIGI. Document abstracts are classified according to evaluation and research studies, program descriptions, supporting documents, and theoretical bases of the systems. The abstracts include a bibliographic citation and where appropriate, an address from which copies of the document may be obtained.

ED272677
A National Comparison of the Use of DISCOVER and SIGI: Technical Report No. 2.
Sampson, James P., Jr.; And Others
Mar 1986, 42p.

EDRS Price—MF01/PC02 Plus Postage.
Document Type: Research Report (143)
Major Descriptors: *Career Guidance; *Computer Oriented Programs; *Computer Software; *Program Effectiveness;

A nationwide comparative study of the 677 sites using DISCOVER or SIGI (computer-assisted career guidance systems) as of June 1984 was made. Software-based and institutionally-based factors influencing system use were explored. The former included theoretical bases, ease of software usage, and developer's implementation assistance; while the latter included staff competence, organizational dynamics, financial resources, clientele, implementation plan, and system integration with other activities and facilities. The sample included 408 respondents (60 percent of the 677 DISCOVER and SIGI sites surveyed). Multivariate log-linear models were used to analyze data in five areas of systems use, and univariate analyses were used in two other areas. Results suggested that institutionally based factors, not software-based factors, were largely determining how DISCOVER and SIGI were used. However, it was noted that software-based factors, such as system theory bases, might be emphasized more by researchers, developers, and practitioners in order to maximize the impact of computer-assisted career guidance systems. (The report includes 10 tables and the survey instrument.)

ED272678
Use of Computer Assisted Career Guidance with Prior Cognitive Structuring. Technical Report Number 3.
Shahnasarian, Michael; Peterson, Gary W.
May 1986, 17p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Research Report (143)
Major Descriptors: *Adult Students; *Career Choice; *Career Counseling; *Cognitive Restructuring; *Computer Oriented Programs; *Vocational Interests

Cognitive structuring was implemented by showing 30 subjects a 10-minute videotape that presented Holland's (1985) model of the world of work before they used an interactive computer-assisted guidance system (DISCOVER). The effect of prior structuring was assessed in terms of a subject's representation of the world of work, occupational certainty, and vocational identity. The subjects were 90 volunteer clients who came to a university career resource center for vocational counseling. Two treatment groups and a control group were used: pretest, cognitive structuring, and DISCOVER; pretest and DISCOVER; and DISCOVER only. The results indicated that subjects who assimilated the Holland model prior to using DISCOVER were more homogeneous in sorting 36 randomly selected occupations into related clusters and were more homogeneous in the number of occupational alternatives they listed on a posttest. Subjects who used DISCOVER without cognitive structuring became significantly more assured of their vocational identity (i.e., goals, interests, personality), while the cognitive structuring group did not become so assured. Occupational certainty was unaffected by any treatment. The cognitive structuring experience prior to subjects' use of DISCOVER encouraged them to add occupations to consider when they had few alternatives and to eliminate occupations to consider when they had many. The use of cognitive structuring and DISCOVER may therefore prove useful in vocational counseling of adults, although more research is needed.

ED274861
Improving Vocational Guidance and Counseling: A Comprehensive Course Plan for Vocational Preparation. Vocational Guidance and Counseling Project. Final Report.
Sherman, Mary J.
2 Aug 1986, 16p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Project Description (141)
Target Audience: Practitioners
Major Descriptors: *Career Guidance; *Computer Oriented Programs; *Course Selection (Students); *Occupational Information; *Program Development; *Vocational Interests

A project was developed for the seventh- and eighth-grade student population to make available a computer-based program that provides specific prerequisite course data as well as electives to careers chosen by the students. The original areas of interest were defined by the student through use of a survey instrument and the initial course assignments made by the school's guidance department. One hundred careers were matched to specific listings of courses and electives. Through his/her program the individual student was allowed three career choices. The computer printed the required courses for that area and listed available electives. A schedule for the first year of operation was designed that proposed scheduling students through English classes (a required course for all students) and others on a "drop by" basis to use the computer. (Illustrations include the career interest survey instrument, user's guide to the computer program, and sample career profiles that are printouts of courses for three chosen careers.)

ED274857

Spotsylvania County Intermediate Schools Resource Notebook. Career Education Lesson Plans.

Spotsylvania County Public Schools.

Apr 1986, 184p.

EDRS Price—MF01/PC08 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Career Education; *Career Guidance; *Computer Assisted Instruction; *Guidance Centers; *Microcomputers; *Resource Centers

This resource notebook contains lesson plans for use in providing career education to students in grades 6, 7, and 8. Lessons plans are organized into sections addressing the following subject areas: language arts and foreign language, reading, mathematics, science, social studies, health and physical education, special education, and fine arts and vocational education. Each lesson plan contains some or all of the following: subject area(s) addressed, unit(s) in which the activity could be integrated effectively, objectives, procedures for infusing the activity into the existing curriculum, resources and materials needed to complete the activity, and comments on use/suggestions for future use. The individual lesson plans describe a variety of activities provided, including completing written exercises, listening to guest speakers, taking field trips, using newspapers and magazines, participating in a spelling bee, constructing posters, staging incidents and having other students write newspaper articles describing them, writing reports and letters, and doing library research.

ED279918

The Growth Edge: Creative Use of Computers for Facilitating Learning and Enhancing Personal Development. Papers from the Workshop (Ann Arbor, Michigan, June 27-30, 1986).

Walz, Garry R., Ed.; Bleuer, Jeanne C., Ed.

1987, 48p.

Available from: ERIC/CAPS, 2108 School of Education, University of Michigan, Ann Arbor, MI 48109-1259.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: ERIC Product (071); Conference Proceedings (021)

Major Descriptors: *Computers; *Computer Uses in Education; *Cost Effectiveness; *Counselors; *Stress Management

This document is the fourth publication in a series devoted to the use of computers in counseling. The outgrowth of the 1986 ERIC/CAPS workshop, it contains four of the major presentations made at the conference. "The Impact of Computers on the Future of Counseling: Boom or Boomerang" (Edwin L. Herr) examines the effect of technology upon society and whether counselors need computerization, and offers three major perspectives on the impact of computers on the future of counseling: computers as content, as process, and as method. "Computer Use or Abuse: Ethics in the Use of Computers" (James P. Sampson, Jr.) explores the misuse of computer applications, overdependence on computer technology, and the restriction of the counseling process to the cognitive component alone. "Counselors vs. Computers: A Cost/Benefit Analysis" (Marilyn E. Maze) discusses making a cost analysis of the use of computers in counseling. "Taking the Byte Out of Computers: Strategies for Minimizing Stress" (Joseph Fisher) explains stress associated with computers and suggests steps to bring stress under control.

Software Evaluation

ED275308

Computer Courseware Evaluations, June 1985 to March 1986.

Alberta Dept. of Education, Edmonton. Curriculum Branch.

1986, 236p. For the 1985 edition of this report, see ED 262 764.

Available from: Learning Resources Distributing Centre, Alberta Education, 10410-121 Street, Edmonton, Alberta, Canada T5N 1L2 ($10.00 prepaid in Canadian funds).

EDRS Price—MF01/PC10 Plus Postage.

Document Type: Evaluative Report (142)

Target Audience: Practitioners

Major Descriptors: *Computer Software Reviews; *Courseware; *Mathematics Instruction; *Microcomputers; *Science Instruction

The fifth in a series, this report reviews Apple microcomputer courseware—and some IBM computer courseware—authorized by Alberta Education from June 1985 to March 1986. It provides detailed evaluations of 97 authorized programs in business education (11), business education/math (1), computer literacy (4), computer literacy/math/problem solving (1), language arts (9), mathematics (41), math/problem solving (2), problem solving skills (3), and science (25). Several of the programs are in French. Each evaluation includes

the disk title, producer(s), address, telephone number, grade level, contents, topics, additional hardware-software requirements, other formats available (not evaluated), year produced, cost, subject, and format. Also included are objectives, content description, content evaluation, instructional format description and evaluation, technical system description and evaluation, implementational support description and evaluation, a summary statement, status (basic, recommended or supplementary), and purchase information.

ED284536
Garbage In/Garbage Out: Evaluating Computer Software.
Curley, Wendy Paterson; Strickland, James
14 Apr 1986, 16p. Paper presented at the Annual Symposium of the New York College Learning Skills Association (Ellenville, NY, April 14, 1986).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Non-classroom Material (055); Conference Paper (150); Test, Questionnaire (160)
Target Audience: Practitioners
Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Evaluation Criteria; *Instructional Material Evaluation
Guidelines for understanding computer-assisted instruction (CAI) pedagogical designs and evaluating CAI software for its relevance to specific teaching and learning objectives are presented in this paper. Topics discussed include applications, drawbacks, and examples of the five types of CAI software—drill and practice, tutorial, simulation, problem solving, and educational games. An open-ended evaluation instrument which is simple to use and which emphasizes instructional objectives over methods is described, and a copy of the evaluation form and a list of recommended sources for software reviews are appended.

ED281495
An Annotated Bibliography of the Literature Dealing with the Evaluation of Educational Microcomputer Software.
Gundlach, Ann C.
Apr 1985, 75p. Exit Project, Indiana University at South Bend.
EDRS Price—MF01/PC03 Plus Postage.
Document Type: Bibliography (131); Dissertation (040)
Target Audience: Practitioners
Major Descriptors: *Computer Assisted Instruction; *Courseware; *Evaluation Criteria; *Instructional Material Evaluation
Designed to assist the educator in making informed decisions about the quality and selection of instructional microcomputer software, this annotated bibliography examines literature dealing with the need for software evaluation, evaluation criteria, and the effectiveness of computer-assisted instruction. Introductory materials provide a brief overview of the problems involved in software evaluation, the organization and limitations of this study, and a glossary of computer terms used in the report. A summary of the findings of the literature review and recommendations for future research, for evaluation forms and criteria, and for school policies conclude the report. A detailed analysis of the criteria used on selected evaluation forms is appended.

ED273252
Computer Software Reviews.
Hawaii State Dept. of Education, Honolulu. Office of Instructional Services.
Mar 1986, 94p.
EDRS Price—MF01/PC04 Plus Postage.
Document Type: Directory (132); Evaluative Report (142)
Target Audience: Practitioners
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Computer Software
Intended to provide guidance in the selection of the best computer software available to support instruction and to make optimal use of schools' financial resources, this publication provides a listing of computer software programs that have been evaluated according to their currency, relevance, and value to Hawaii's educational programs. The introduction explains the entry format and provides keys to the codes used to describe the entries, which are listed alphabetically by title. A listing of individual program titles under the appropriate subject headings provides subject access to the alphabetical listing. Information provided for each software program in the main entry includes the title, its subject (or application) code, grade level code, the publisher, copyright date, price, hardware required, rating, a list of strengths, a list of weaknesses, comments, published reviews, suggested call number, and suggested subject heading. The guidelines used by the Computer Review Center and Clearinghouse in the Hawaii Department of Education and samples of their evaluation and request forms are included, as well as order forms for MECC (Minnesota Educational Computing Consortium) software programs and a directory of producers.

ED280437
Exploratory Computer Literacy Curriculum Guide, Grades 9-12. Resource Unit.
Hawaii State Dept. of Education, Honolulu. Office of Instructional Services.
Sep 1986, 135p. For the curriculum guide, see ED 264 836.
EDRS Price—MF01/PC06 Plus Postage.
Document Type: Teaching Guide (052); Project Description (141)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Literacy; *Computer Software; *Learning Activities; *Microcomputers; *Models

This resource unit, an addendum to *The Exploratory Computer Literacy Curriculum Guide, Grades 9-12*, is designed to provide teachers with guidelines and classroom computer activities for integrating the exploratory computer literacy program into the curriculum. An overview of the guide is given in the introduction, which notes that the materials reflect the teacher-developers' own environment variables such as school size, student characteristics, accessibility to microcomputers, and teaching style. A section on classroom management offers suggestions for effective curriculum implementation and addresses the operation of the computer laboratory, classroom demonstrations, use of the computers, diskette management, and copyright laws concerning microcomputer software. A broader perspective on implementation within the total school is provided in a section on integrating computer literacy into the curriculum, which addresses such topics as administrative support, a school computer coordinator, schoolwide planning and cooperation, resources, and faculty workshops. Five models are proposed as alternatives for delivering computer literacy in the secondary schools. Sample activities are provided for the language arts, mathematics, science, and social studies, each of which includes course content objectives and guidelines in the following categories: subject, student expectations, instructional mode, prerequisites, classroom management, materials, activity time, teacher preparation, and sequence of activities. Resources include lists of recommended software and additional teaching aids.

ED280435
Evaluation of Computer Software for Use in the Classroom.
Johnson, William E.
24 Nov 1986, 14p. Paper presented at the National Conference of the National Council of States on Inservice Education (11th, Nashville, TN, November 21-25, 1986).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Teaching Guide (052); Project Description (141); Conference Paper (150)
Target Audience: Practitioners; Teachers
Major Descriptors: *Computer Software; *Computer Software Reviews; *Evaluation Criteria

To help teachers cope with the proliferation of software and software sources, a number of resources are available to aid in the evaluation and selection of educational software. For instance, both the *Educator's Handbook and Software Directory* and *Swift's Directory of Educational Software, Apple II Edition* provide listings of educational software on specific subjects for the Apple microcomputer. Software review sources include the *Journal of Courseware Review*, *Purser's Magazine*, *MACUL Journal*, MicroSIFT, and SOFTSWAP. Since evaluating software requires teacher judgment and sensitivity, criteria for evaluating software could include such questions as: whether the software is computer-specific to learning; whether the program is fun to use; whether the software allows for practice or experimentation; whether the software is suitable for various age groups; whether the software is open-ended; whether there are learning assumptions behind the software; and whether there are moral values built into the software. Guidelines developed by the International Council for Computers in Education (ICCE) and the International Reading Association (IRA) for the selection of appropriate classroom software are also provided, as well as Kenneth A. Ryba and James W. Chapman's guidelines for teachers who wish to write their own software, and five references.

ED273262
The 1986 Educational Software Preview Guide.
Lathrop, Ann, Ed.
Dec 1985, 91p. Guide developed at the California TECC Software Evaluation Forum (Menlo Park, CA, December 2-6, 1985).
EDRS Price—MF01 Plus Postage. PC Not Available from EDRS.
Document Type: Non-classroom Material (055); Directory (132)
Target Audience: Practitioners
Major Descriptors: *Courseware; *Microcomputers

This guide lists favorably reviewed microcomputer software for K-12 student instruction. It is not intended for use as a buying guide, but as an aid to educators in locating commercially available software they may want to preview to determine its suitability for their instructional program and students. Each annual edition of this guide is an independent publication and includes titles from earlier editions only if they meet the criteria established for the current year. Individual programs are listed alphabetically by title within a curriculum area,

and each listing includes the publisher, microcomputers the program can be used with, instructional mode, grade level, and price. The 20 areas represented are art, business education, computers, electronic periodicals, foreign language, home economics/living skills, health, instructional tools, keyboarding, language arts/English, library media skills, mathematics, music, preschool/early childhood, problem solving/logic, science, special needs/physically handicapped, social studies, testing, and vocational education/industrial arts. The guide also includes a list of consortium member institutions; a key to the abbreviations used; an alphabetical listing of software titles with the name of the publisher, microcomputer, curriculum area, and price; and a directory of publishers represented in the guide.

ED277361
Only the Best: The Discriminating Software Guide for Preschool-Grade 12. 1986 Edition.
Mattas, Linda L.
1986, 128p. A Special Report from the Editors of *School Tech News*.
Available from: Education News Service, PO Box 1789, Carmichael, CA 95609 ($19.95).
Document not available from EDRS.
Document Type: Non-classroom Material (055); Project Description (141)
Target Audience: Practitioners; Parents
Major Descriptors: *Computer Software Reviews; *Courseware; *Evaluation Criteria
Designed to aid teachers, school administrators, and parents in selecting excellent education software for grades K-12, this guide reports the results of over 7,800 evaluations of educational software programs and lists the 250 selected as the newest education software winners. In addition to these programs, this 1986 edition has added software that has received high ratings from evaluation services specializing in special education. Following the introduction, which provides a detailed explanation of how the programs cited were selected, the guide is divided into four parts: Part I contains an alphabetical listing of the 168 most highly rated programs, which include courseware in the areas of business education, college entrance examinations, computer education, early childhood education, fine arts, foreign language, language arts, mathematics, problem-solving, science, and social studies, as well as tool programs; Part II contains information on 54 nearly qualifying programs; Part III provides information on 28 highly rated special education programs; and Part IV lists the most highly rated programs in the 1985 edition. Each description includes the publisher, system requirements, subject area, price, and grade levels. Information on the most highly rated programs also includes a brief description of each program, the appropriate subject area(s), and evaluation service ratings.

ED279297
A Comparison of Keyboarding Software for the Elementary Grades. A Quarterly Report.
Nolf, Kathleen; Weaver, Dave
Sep 1986, 13p. The Northwest Regional Educational Laboratory Technology Program. For the companion paper, see ED 279 298.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Teaching Guide (052); Evaluative Report (142)
Target Audience: Practitioners
Major Descriptors: *Computer Software; *Merchandise Information
This paper provides generalizations and ideas on what to look for when previewing software products designed for teaching or improving the keyboarding skills of elementary school students, a list of nine products that the MicroSIFT (Microcomputer Software and Information for Teachers) staff recommends for preview, and a table of features comparing the 25 products submitted to MicroSIFT for review. The appendix contains producer contact information and a table of descriptive information for 64 elementary keyboarding products available as of June 1986 that were identified by MicroSIFT staff. Products recommended for preview are listed in alphabetical order: Keyboard Cadet; Keyboard Now ; Kids on Keys; Mastertype; Microtype, the Wonderful World of Paws; Stickybear Typing; Success with Typing; Type to Learn; and Typing Well.

ED277359
Evaluator's Guide for Microcomputer-Based Instructional Packages. Developed by MicroSIFT, a Project of the Computer Technology Program. Sixth Revision.
Northwest Regional Educational Lab., Portland, Oreg.
Mar 1986, 48p. For the original guide, see ED 206 330.
Available from: International Council for Computers in Education, University of Oregon, 1787 Agate Street, Eugene, OR 97403 (1-4 copies, $3.00 each; discounts on larger orders are available).
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Non-classroom Material (055); Test, Questionnaire (160)
Target Audience: Practitioners; Students
Major Descriptors: *Courseware; *Evaluation Methods; *Microcomputers

This guide developed by MicroSIFT, a clearinghouse for microcomputer-based educational software and courseware, provides background information and forms to aid teachers and other educators in evaluating available microcomputer courseware. The evaluation process comprises six stages: (1) sifting, which screens out those programs that are not instructional in nature and determines a package's operational readiness and hardware compatibility; (2) package description, including program format, instructional purpose and technique, type of package, available documentation, and the hardware configuration necessary for its use; (3) gathering field data from evaluation experts at the K-12 level; (4) verification of the first draft of the review by the producer of the software; (5) final drafting and production of the review; and (6) dissemination of the courseware evaluation. Forms for the second (descriptive) and third (evaluative) phases are provided, together with explanations of the kinds of information needed and discussions of some of the factors to be considered in completing various sections of the forms. Definitions of five terms are provided in the introductory section, four modes of distribution for the 535 evaluations published by MicroSIFT during its 5-year history are listed, and four sample reviews conclude the guide.

ED279298
Elementary Keyboarding Software Product Reports.
Northwest Regional Educational Lab., Portland, Oreg.
Sep 1986, 40p. The Northwest Regional Educational Laboratory Technology Program. For the companion paper, see ED 279 297.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Project Description (141)
Target Audience: Practitioners
Major Descriptors: *Computer Software; *Keyboarding (Data Entry); *Merchandise Information
This report provides detailed product descriptions of 45 software programs designed to teach or improve the keyboarding skills of elementary school students that were identified by the MicroSIFT (Microcomputer Information and Software for Teachers) staff. The descriptions include program titles, producer names, costs, grade levels, hardware, software content and structure (publisher's description), and in some cases, management applications. The programs described are listed in alphabetical order: Accutouch II; Alphabetic Keyboarding; Dungeon Doom Typing Game; First Encounter; Friendly Computer; Ima Typer; Junior Typer; Keyboard; Keyboard Cadet; Keyboard Command; Keyboard Master; Keyboard Now & Practice Now; Keyboarding; Keyboarding for Information Processing; Keyboarding Master; Keyboarding Plus; Keyboarding Primer; Key-Words; Kids on Keys; KRS: Keyboarding/Reading/Spelling Program; Letter Man; Letterfall; MacType; MasterType; MicroType, the Wonderfuld World of Paws; Personalized Typing; Stickybear Typing; Success with Typing; TNT—Typing for New Typists; Touch Typing; Type; Type to Learn: A New Approach to Keyboarding; Type-Right; Typing; Typing Is a Ball, Charlie Brown; Typing Keys to Computer Ease; Typing Professor; Typing Strategy; Typing Teacher; Typing Teacher II; Typing Tutor & Word Invaders; Typing Tutor III; Typing Well; Warrior Words; and WizType. A list of producer contacts information concludes this report.

ED277728
York Educational Software Evaluation Scales, Document Number 2.
Owston, Ronald D.
1 May 1985, 16p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Project Description (141); Test, Questionnaire (160)
Major Descriptors: *Courseware; *Evaluation Methods; *Instructional Material Evaluation; *Rating Scales
According to a recent survey, the quality of educational software is the single most stated concern of computer educators in Canada. Only a small fraction of the educational software is evaluated. The evaluation approaches that have emerged to deal with this problem are subjective and unreliable, and they do not provide an overall impression of a given piece of software. The York Educational Software Evaluation Scales (YESES) presented in this document have been designed to overcome these problems. Drill and practice, tutorial, and problem solving software are rated on four key characteristics: pedagogical content, instructional presentation, technical adequacy, and documentation. A fifth scale, modelling, is used to rate simulation software. Each of these characteristics is rated on a four-point scale, with level 4 being indicative of a high rating on the characteristic, and level 1 being indicative of a low rating. The YESES are criterion based in that each level on the scale is referenced to a set of descriptors which give typical features of the software at that level. With these scales, the evaluation of software becomes the process of determining which set of descriptors best characterizes the software. Detailed directions for using the YESES are provided, including definitions of each of the four key characteristics of the sofware for each level of the scales.

ED281887

Evaluation Realities or How I Learned to Love "The Standards" While Evaluating a Computer Assisted Instruction Project.

Payne, David A.

Nov 1986, 13p. Paper presented at the Annual Meeting of the American Evaluation Association (Kansas City, MO, October 29-November 1, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Conference Paper (150); Research Report (143)

Target Audience: Researchers

Major Descriptors: *Computer Assisted Instruction; *Evaluation Criteria; *Program Evaluation; *Standards; *Student Attitudes

This case study presents a narrative summary of the evaluation of a two semester computer assisted instruction (CAI) project in an all minority high school. Use of PLATO software with Control Data microcomputers brought about modest achievement advantages, higher internal locus of control, more positive attitudes toward school and specific course subjects than non-CAI using ninth and tenth grade students. These effects were particularly pronounced for students in Language Skills, Chemistry, Algebra, and Mathematics. The paper concludes with discussion of lessons learned while doing the evaluation as seen in the context of the Standards for Evaluations of Educational Programs, Projects, and Materials.

ED280441

Integrating Thinking Skills Software into the Curriculum.

Shaw, Carla Cooper

Nov 1986, 18p. Paper presented at the Annual Conference of the National Council of States on Inservice Education (Nashville, TN, November 21-25, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Position Paper (120); Project Description (141); Conference Paper (150)

Target Audience: Practitioners

Major Descriptors: *Cognitive Processes; *Computer Software; *Media Selection

Citing several reasons why computers offer the potential to enhance instruction, this paper suggests that the teaching of thinking skills should be integrated into various subject areas by using software programs that involve the use of the skills required in the particular subject area. To illustrate this matching strategy, three software programs—"Hurkel," "Moptown Parade/Hotel" and "Carmen"—are examined. The discussion of each program includes a description of the software, a sample run where possible, and ways in which they can be used in instruction and learning in specific subject areas. Although these examples illustrate that thinking skills software can be integrated into the curriculum, it is noted that teachers must still point out the connections between particular thinking skills and their applications in both academic and out-of-school situations. Three guidelines developed by the Higher Order Thinking Skills Project (HOTS) to promote the development of thinking skills through the use of computer software are then presented: (1) use a variety of programs; (2) design learning to include synthesis of information and skills from multiple subject areas; and (3) organize and prioritize information from the classroom. Five additional software programs appropriate for this purpose are suggested, and teachers and administrators are asked to remember that, although software programs are often presented as games, they are also powerful learning tools. It is concluded that instruction in thinking skills will be enhanced only when the software is carefully selected and appropriately used. Lists of nine references and the distributors of eight software programs mentioned in the text are provided.

ED275630

Software in the Classroom: The Teacher as Judge.

Widmer, Connie Carroll

Nov 1984, 21p. Paper presented at the Annual Conference of the National Council of tates on Inservice Education (9th, Orlando, FL, November 1984).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Conference Paper (150); Project Description (141)

Major Descriptors: *Computer Assisted Instruction; *Courseware; *Instructional Material Evaluation; *Microcomputers; *Programed Instructional Materials

This paper discusses the types of computer software that are most effective in a classroom. Detailed descriptions are given of: (1) drill and practice programs; (2) tutorials; (3) simulations; and (4) games and problem-solving software. The effectiveness of each is discussed as well as the characteristics of a good program of its genre. An example of how each program operates is given and the academic benefits are considered. The principles and examples of these programs offer guidelines for teachers in selecting good educational software for the classroom.

Interactive Video

ED278251
An Introduction to Interactive Video.
Chung, Ulric
1985, 8p. In: Gillespie, Junetta B., Ed. *Video and Second Language Learning*. Urbana, Language Learning Laboratory, University of Illinois at Urbana-Champaign, 1985; see ED 278 240. Figure 3 contains marginally legible print.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Teaching Guide (052); Journal Article (080)
Major Descriptors: *Computer Software; *Equipment Evaluation; *Interactive Video; *Videodisks; *Video Equipment
Aspects of interactive video use in the second language classroom are examined. The major components and equipment considerations for an interactive videodisk and computer system are outlined, including factors in the choice of a system interface. The use and control of interactive video for accessing scenes to be played are described, and suggestions to help teachers use the medium's inherent work-saving capabilities are presented. The discussion concludes with an examination of the limitations of interactive video use, including costs and lack of prepared materials. Three figures illustrate the text.

ED278370
Effectiveness of Interactive Videodisc Training: A Comprehensive Review. The Monitor Report Series.
DeBloois, Michael; And Others
1984, 80p.
EDRS Price—MF01/PC04 Plus Postage.
Document Type: Review Literature (070); Position Paper (120); Project Description (141)
Major Descriptors: *Instructional Design; *Instructional Improvement; *Interactive Video; *Videodisks
This report focuses on and suggests ways of using instructional technology to provide better education/training delivery systems, especially the use of interactive videodiscs. The first chapter discusses the need for technology-based training; describes the computer interface components, functions, and characteristics of interactive videodisc systems; considers the theoretical principles involved in designing instruction to enhance learning; provides a historical perspective on the development of interactive videodiscs including the names of companies that were forerunners in the field; and lists current interactive videodisc manufacturers. Citing information from an extensive literature review of conceptual reports and experimental studies, the second chapter discusses future instructional uses of interactive videodiscs; the purchasing and integration of hardware components into workable systems; and the development and pilot testing of software programs. The chapter concludes with five general statements about interactive videodisc systems. The discussion of instructional design for adult learners in the third chapter includes information on the learning process and four phases of development peculiar to adults. The last chapter summarizes the potential uses of interactive instruction and notes factors that may inhibit its use in education. A list of the literature cited is provided.

ED283504
The Educators' Handbook to Interactive Videodisc. Second Edition.
Schwartz, Ed
1987, 161p. For 1985 edition, see ED 273 253.
Available from: Association for Educational Communications & Technology, 1126 16th Street, NW, Washington, DC 20036.
EDRS Price—MF01 Plus Postage. PC not available from EDRS.
Document Type: Non-classroom Material (055); Directory (132)
Target Audience: Practitioners
Major Descriptors: *Computer Software; *Interactive Video; *Optical Disks; *Videodisks; *Video Equipment
Designed to be a source of information for educators about interactive videodiscs, this handbook presents an overview of the technology and offers additional sources to be consulted for more detailed information. It is noted that, although this second edition of a 1985 publication has gone through extensive changes, clarifications, and corrections, the focus has been kept on the use of technology in education with specific information on appropriate hardware and software to provide a single-source reference for educators and trainers. Information on interactive videodiscs is presented in 10 chapters: (1) Introduction to Videodiscs; (2) Overview of Laserdisc Systems; (3) Selecting a Laser Videodisc Player; (4) Video Playback Units; (5) Videodisc Interface Units; (6) Disc Player Peripherals; (7) Videodisc System Packages; (8) Educational Videodisc Software; (9) Interactive Videodisc Authoring Tools; and (10) Care and Maintenance. Ten appendices provide directories of laserdisc players, television monitors and projectors, laserdisc interfaces, laserdisc

peripherals, laserdisc system packages, laserdisc software, videodisc mastering options, and authoring language distributors; service information; and a videodisc bibliography which lists 11 books, 17 periodicals, 6 conference proceedings, 3 special videodisc publications, a directory of 14 organizations that hold conferences and workshops, and an index of 132 manufacturers.

Management/Administration

ED275305
Wisconsin Guidelines for Instructional Computer Use in Education, K-12. First Edition.
Anderson, M. Elaine, Ed.
Jan 1985, 67p. For the working draft of this manual, see ED 244 610.
EDRS Price—MF01/PC03 Plus Postage.
Document Type: Non-classroom Material (055)
Target Audience: Practitioners
Major Descriptors: *Computer Assisted Instruction; *Computer Uses in Education; *Educational Administration; *Program Implementation

This manual presents guidelines for defining and detailing the use of computers in education and provides a basic model for introducing, implementing and evaluating computer technology in schools, including issues related to equity. Chapter 1 provides a brief overview of the impact of computers on education and a list of principles for implementing their use in schools. Chapter 2 presents a model for computer use in education, including guidelines for teaching about computers and programming, for computer-assisted learning (CAI), and for computer-managed instruction (CMI), and a model for utilizing computers in educational administration. Planning for the introduction of computers in K-12 instruction is outlined in chapter 3, and chapter 4 describes the process for implementing a district plan, including guidelines for staff development; software and hardware selection, acquisition, and management; and program integration. A chart suggesting the scope and sequence of computer education is included, and indicates possible grade spans for introductory, developmental, and review activities. Chapter 5 provides a list of questions that may be helpful in evaluating and/or modifying the district plan. The appendices include a summary of equity issues forms for courseware and hardware evaluation.

ED273251
Computer Applications Planning.
California State Dept. of Education
1985, 65p. This publication is an adaptation of a guide originally published by the Merrimack Education Center, Chelmsford, Massachusetts.
Available from: Publications Sales, California State Department of Education, PO Box 271, Sacramento, CA 95802-0271 ($5.00 plus tax for California residents).
EDRS Price—MF01 Plus Postage. PC not available from EDRS.
Document Type: Non-classroom Material (055)
Target Audience: Practitioners
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Curriculum Development; *Educational Planning; *Staff Development

As part of California's comprehensive program to improve and strengthen its schools by incorporating educational technology into the entire curriculum, funds have been provided to school districts that have developed an educational technology or computer education plan. This guide identifies planning activities and describes steps district personnel can follow in developing their programs. It is organized according to five major steps in the planning process: (1) planning preliminary activities; (2) integrating computers into the curriculum; (3) delivering staff development services; (4) acquiring hardware and software; and (5) organizing and implementing the program. This publication may also be used as a reference manual, part of a staff development program, or in conjunction with training seminars. The approach to computer education is curriculum based and focuses on ways in which the curriculum can be improved by use of the computer. Staff training is allocated according to curriculum priorities, and hardware and software acquisitions are matched to application needs. This guide provides a comprehensive program plan, not only to help users find solutions, but also to help practitioners develop their own responses to needs within their districts.

ED273648
A Study on the Implementation of the Ecotran Systems, Inc. Computerized Routing and Scheduling Pupil Transportation System.
Carriedo, Ruben; And Others
7 Jan 1986, 153p. This paper received the 1986 American Educational Research Association Division H award for Best Report on a Management Study. Flowcharts in Appendix C contain small print.

EDRS Price—MF01/PC07 Plus Postage.
Document Type: Project Description (141); Test, Questionnaire (160)
Major Descriptors: *Bus Transportation; *Computer Oriented Programs; *Program Evaluation; *Student Transportation; *Surveys

The San Diego Unified School District (California) began operating a computerized routing and scheduling system for its pupil transportation services at the beginning of the 1985-86 academic school year. The computerized system, provided by Ecotran Systems, Inc. (ECO) of Cleveland, Ohio, experienced an inordinate number of difficulties. A five-member Superintendent's Organizational Study Team was appointed to study the implementation of ECO. The purposes of the study were: (1) to examine the specific problem in transportation resulting in recommendations for improvement effective prior to the beginning of the 1986-87 school year; and (2) to propose a structural process for developing and implementing major interdivisional change efforts within the district. The methodology for conducting this study evolved over time and consisted of several phases, including the definition of the task, study team work sessions, review of organizational diagnosis literature, review of pertinent background documentation, identification of areas for examination, and determining methods of investigation. The findings were in nine theme areas: rationale for automation; planning and implementation; role of the project team and its effectiveness; technology; contract development and administration; ECO organization and performance; structure for communication; dynamics of leadership; and delivery of service: the site perspective. Appendixes include interview protocols, the Ecosystem survey report, flowcharts on ECO implementation, cost data, and a bus route and ridership audit.

ED280448
Feasibility Study on the Use of Computer Managed Learning in Secondary Schools in the U.S.A.
Charp, Sylvia
Feb 1984, 32p; A chart contains marginally legible print.
EDRS Price—MF01 Plus Postage. PC not available from EDRS.
Document Type: Research Report (143)
Major Descriptors: *Computer Assisted Testing; *Computer Managed Instruction; *Individualized Instruction; *Microcomputers; *Recordkeeping; *Time Sharing

A brief description of computer managed instruction (CMI), including its applications and capabilities, introduces case studies of schools in the United States that are using three different CMI systems. The first system discussed is the Comprehensive Achievement Monitoring (CAM) Program, which was developed by a small school district (Hopkins, Minnesota) for a time-sharing system, and is now being used in a microcomputer. The microcomputer version has been redefined as the Mastery Management System (MMS). The second system—the Instructional Management Program (IMP)—is being used in a large school system in a number of schools, still in a time-sharing system, but adaptation for a microcomputer is being investigated. The third system is a generalized management system which was developed by a publisher for sale to schools. Developed for the microcomputer, this system is restricted in the number of students and the amount of data it can handle, but it is in use in many U.S. schools, and is included in this report as typical of what is being sold in the United States. Each case study presents a brief description of the program as well as an analysis of its basic operations, ways in which the program is being used, and information about the system that is distributed to students. The paper concludes with a summary of the capabilities of CMI, e.g., the generation and scoring of tests, managing instructional resources, and data management. Several diagrams and charts are provided in the case study of IMP.

ED274330
35 Ways to Take a "Byte" out of Software Costs. Fund Raising Ideas from COMPress Customers.
COMPress, Wentworth, NH.
[1986], 24p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Non-classroom Material (055); Project Description (141)
Target Audience: Practitioners; Students
Major Descriptors: *Computer Software; *Donors; *Elementary Schools; *Fund Raising; *High Schools

Based on a survey sponsored by *COMPress Quarterly* of various schools to determine the extent of the problem of lack of funds for purchasing computer software and how schools have coped with the problem, this booklet describes numerous ways to raise funds for software purchases. Nearly 1,000 questionnaires were returned and this booklet was developed from the responses. It is divided into five major areas: (1) "Unabashed Solicitations" presents information on donations, contributions, and company-sponsored software; (2) "Sponsor User-Friendly Fairs & Festivities" includes information on computer fests, bus trips, pancake breakfasts, beauty contests, athletic events, and a computer dating service; (3) "Sell Computer-Related Goods & Services" includes information on selling computer-produced merchandise, souvenirs and blank disks, teaching computer classes, sponsoring a computer camp, recruiting a business professional, renting computer time, providing word processing services, and developing databases; (4) "Offering Mega Services" includes car washes,

sporting goods exchange, collecting returnable cans/bottles, selling souvenirs/school equipment/seasonal products, wrapping Christmas gifts and "Rent-a-Claus"; and (5) "Run A Raffle, Auction, or Something-A-Thon" includes selling raffle tickets, hosting an auction, and planning other fundraising events.

ED280154
Administrative Uses of Microcomputers.
Crawford, Chase
Practitioner, v13 n3 Mar 1987
Mar 1987, 14p.
Available from: Publication Sales, National Association of Secondary School Principals, 1904 Association Drive, Reston, VA 22091 ($1.00 prepaid; quantity discounts).
EDRS Price—MF01 Plus Postage. PC not available from EDRS.
Document Type: Serial (022); Non-classroom Material (055)
Target Audience: Administrators; Practitioners
Major Descriptors: *Computer Oriented Programs; *Computer Uses in Education; *Database Management Systems; *Educational Administration; *Management Information Systems; *Microcomputers

This paper examines the administrative uses of the microcomputer, stating that high performance educational managers are likely to have microcomputers in their organizations. Four situations that would justify the use of a computer are: (1) when massive amounts of data are processed through well-defined operations; (2) when data processing is highly repetitive; (3) when processing speed is important; and (4) when the task can be performed by a computer, and manual performance is not practical. Tasks that can be automated by microcomputers are discussed for 16 administrative functions. Descriptions of the tasks are based on the capabilities of software recommended by at least two principals in two National Association of Secondary School Principals (NASSP) surveys and two surveys of Florida principals. Four functions—student records, scheduling, attendance accounting, and grade analysis and reporting—are identified as constituting over 50 percent of the NASSP survey recommendations. The remaining functions are listed as athletics, budgeting, financial accounting, food service, guidance, information from data banks, instructional management, inventory and property records, media center, planning, staff/personnel records, and student transportation. Each function is examined in depth and capabilities of the software for each function are highlighted.

ED277367
Patterns of Implementing a District Computerized Instructional Management System.
Crist-Whitzel, Janet L.; And Others
Apr 1986, 35p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986). For another report on this project, see ED 277 366.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Research Report (143); Conference Paper (150)
Target Audience: Researchers
Major Descriptors: *Adoption (Ideas); *Computer Assisted Testing; *Computer Managed Instruction; *Mathematics Achievement; *Program Implementation

A two-part research and evaluation study was conducted to examine an elementary (K-8) school district's implementation of a computerized instructional management system, the "Computer-Managed Instruction/3000" (CMI), as a means of facilitating the assessment and updating of student mastery of 78 district-defined curricular objectives. The testing system consisted of a data bank of tests based on the district mathematics objectives, equipment to machine score student answer sheets, and reports detailing student mastery of the objectives. This system was piloted by administrators and teachers at four district-selected schools. A detailed interview schedule was developed to elicit such information as background in the district; knowledge of the CMI system, including how, why, and by whom it was selected; uses of the system for testing and instruction; technical problems; potential uses of the system; and its effects on school organization and instruction. Analysis of the responses of 49 school staff members—principals, resource teachers, teachers, and clerical staff from both pilot and nonpilot schools—revealed wide variation on all of the factors studied. The factors that appeared to be influential in the nature and degree of CMI implementation efforts at the individual school sites were identified as: (1) technical procedures and personnel; (2) focus on instructional uses; (3) key instructional personnel; (4) site climate and leadership; (5) training; and (6) attitudes and incentives. A consistent ordering of the four schools along these dimensions was found, and it is suggested that the patterns of successful implementation and use of the CMI system identified in this study can provide guidance to other school districts planning and implementing their own CMI systems. A coding matrix is appended and references are included.

ED280640

The Arrowhead Student Information System: Managing Information on Special Education Referrals in a Rural Environment.

Dannenbring, Gary L.; Krueger, Frederick H.

Oct 1986, 8p. Paper presented at the Annual Conference of the National Rural and Small Schools Consortium (Bellingham, WA, October 7-10, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Project Description (141); Conference Paper (150)

Target Audience: Practitioners

Major Descriptors: *Computer Uses in Education; *Handicap Identification; *Management Information Systems; *Organizational Communication; *Program Design; *Special Education

A computerized referral management system, the Arrowhead Student Information System, has enhanced communication among special education staff members in rural Iowa. The system serves a 45-district intermediate level service unit which identifies and serves children from birth to 21 years who require special education from a student and preschool population of approximately 40,500. Information needs which prompted establishment of the system include difficulties in coordinating teacher referrals; evaluation by several staff members; setting up appropriate programs for students; requirements for gathering information needed at federal, state, and local levels; and program evaluation and research. Factors considered in designing the information system include use of ordinary English on regular reports; reduction of codes; usefulness to all staff, not just administrators; staff design and modification of the system to accommodate actual practices and procedures; selection of one in-house person to coordinate system design and programming; and financial considerations in selection of hardware and software. The Arrowhead Student Information System consists of an IBM PC-AT computer as non-dedicated file server and several IBM PC-XT computers as workstations. Software developed using the KnowledgeMan data management package consists of student information, referral management, program and support service data, discipline-specific, and report-generating databases.

ED277159

Applications of Computer Technology in School Profiling and Databased Decision Making. Program Report.

Deck, Dennis

Nov 1986, 15p.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Evaluative Report (142)

Target Audience: Administrators; Practitioners

Major Descriptors: *Computer Oriented Programs; *Data Collection; *Educational Improvement; *Information Needs; *Information Systems; *Instructional Improvement

This paper explores ways in which technology (especially microcomputers) can improve the access to and utility of educational data for school improvement efforts. The paper focuses on the product and project options available to the Northwest Regional Educational Laboratory's Database and School Profiling program, which offers technical and informational assistance to educational agencies. The paper first notes that technology's value lies in four areas: making task performance more efficient, producing higher quality products, automating difficult procedures, and extending capabilities. The paper then reviews six essential steps in the school improvement process as identified in the effective schools literature. Of these steps, data collection and profile production appear best suited to automation, though reviewing profiles and developing improvement strategies are also important, complex steps that could benefit from the application of appropriate technological processes. The final portion of the paper is devoted to examining three specific data gathering and analysis needs of agencies engaged in centralized school improvement planning and four needs of agencies committed to supporting decentralized, local school improvement efforts. The problems, appropriate technological applications, and potential technical assistance strategies are identified for each of the seven needs.

ED277105

A Comprehensive Model for the Design of Micro and Mini Computer Systems in School Districts: A Guide for Developing Computer Systems for Local School Districts.

Graczyk, Sandra L.; Kiser, Chester

1986, 181p.

Available from: Publication Sales, New York State Association of School Business Officials, 119 Washington Avenue, Albany, NY 12210 ($19.95).

EDRS Price—MF01/PC08 Plus Postage.

Document Type: Non-classroom Material (055); Research Report (143)

Target Audience: Practitioners

Major Descriptors: *Computer Uses in Education; *Data Processing; *Microcomputers; *Minicomputers; *School Personnel

This administrative and instructional guide offers information and recommendations for computer design techniques based on literature sources and school district applications; design of micro- and mini-computer systems is intended for those with little or no experience. Chapter 1, "Planning for the Computer System: Choosing Purposes and Parts," deals with selecting inputs, including strategic and tactical plans, a feasibility study, data and material inputs, and the marketplace. "Designing a Logical Structure for the Computer System: Establishing Organization," chapter 2, discusses comprehensive and integrated computer systems, integrating system subsystems, and internal and external user support subsystems. Chapter 3, "Designing Effective Processes for the Computer System: Determining Outputs and Dealing with Constraints," presents information on effectiveness, security, software piracy, and equal access. "Designing Efficient Processes for the Computer System: Implementing the Computer System," chapter 4, discusses developing a change plan, a timetable, support, and training programs. Chapter 5, "Evaluating the Computer System: Providing for Feedback and Adaptation," analyzes environmental change, system stress, and ongoing planning. "Synthesis of the Model," chapter 6, forms a concise design guide. The final chapter offers conclusions and future implications. Eight appendices provide forms for school use, an annotated bibliography, and selected school district references.

ED282307

A Comprehensive Model for the Design of Micro and Mini Computer Systems in School Districts.

Graczyk, Sandra L.

21 Feb 1987, 25p. Paper presented at the Annual Meeting of the American Association of School Administrators (New Orleans, LA, February 20-23, 1987).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Non-classroom Material (055); Conference Paper (150)

Target Audience: Administrators; Teachers; Practitioners

Major Descriptors: *Computer Networks; *Computer Oriented Programs; *Computer Uses in Education; *Microcomputers; *Minicomputers; *Systems Approach

Based on a doctoral dissertation that involved a study of the nation's 100 most successful school computer systems, this report summarizes the study's purpose, scope, methodology, resultant model, general observations, and future implications. The model is divided into two major sections: (1) strategic planning activities, focusing on computer system inputs; and (2) tactical planning activities, discussing computer system processes, outputs, and feedback. Questionnaires were submitted to 75 school districts nominated for their outstanding administrative computer systems and 50 districts nominated for their outstanding instructional computer systems. Responses from 100 (80 percent) of the school districts cited useful concepts and practices. Telephone interviews with 24 survey respondents augmented the questionnaire data. Focused on the design of microcomputer and minicomputer systems, the model guides the design of in-house computer systems for both administrative and instructional applications. Step-by-step procedures outline the key concepts of the study: that planning is a central element of the computer design process at all stages, and that user involvement should be pervasive through the planning, implementation, and growth of the computer system.

ED274309

Beyond 1984: The Positive and Negative Potential of Computer Supported School Focused Information Systems.

Klein, Susan S.

18 Apr 1986, 14p. Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, April 16-20, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Position Paper (120); Conference Paper (150); Project Description (141)

Target Audience: Researchers

Major Descriptors: *Computer Managed Instruction; *Computer Uses in Education; *Educational Planning; *Educational Research; *Information Systems; *School Administration

Although educators' use of computers to track student and school information with the attendant positive and negative outcomes is still in an early stage of development, accessible data from such systems could improve the objective rationality of educational and instructional decision-making as long as no one places unwarranted credibility in the information or misinterprets the data. There is some evidence that it is difficult to develop computer information systems to serve a large number of multiple and multi-level purposes because of costs, incompatible equipment, and technical problems, but a system could be used for such things as student diagnosis, program evaluations, and teacher diagnosis and assessment for use in research studies and trend analyses. A system could also change the nature of quantitative program evaluations to systems evaluations and, when combined with automated testing and instructional components, could facilitate the individualization of instruction. However, too much concentration on the quantitative, technical aspects could raise the fear of creating excessive data demands and unused information. As priorities, budgets, and technology change, it becomes difficult to plan and implement these systems, but schools can get from where they are today to where

they want to be by building on the experiences of business and other service fields, and by giving attention to top-down and bottom-up considerations.

ED281521

Management and Planning Issues in the Use of Microcomputers in Schools. Occasional Paper in Educational Planning, Management and Statistics No. 11.

Lancaster, David

1985, 61p.

EDRS Price—MF01 Plus Postage. PC not available from EDRS.

Document Type: General Report (140)

Target Audience: Policymakers; Administrators; Practitioners

Major Descriptors: *Computer Assisted Instruction; *Educational Administration; *Educational Planning; *Microcomputers

Reasons underlying the growth of interest in Asia and the Pacific region in educational computing and issues raised by such developments are examined in this paper, which begins by describing three main areas of use of microcomputers in schools—for teaching computer studies, for computer assisted learning, and for school adminstration. Reasons for microcomputer use are considered as well as internal and external influences that affect the decision to incorporate computers in school activities: (1) the need to relate education to the needs of the economy; (2) parental pressures; (3) pupils' expectations; (4) the need to facilitate data processing for reporting to external groups; (5) the need for better information for decision making; (6) demands for increased efficiency; (7) assumptions of increased learning effectiveness; (8) push from technical experts; and (9) marketing policies of manufacturers and suppliers. Also considered is the impact of the introduction of computers in schools on teaching methods, curriculum content, and the organizational structure of schools. Issues that are likely to arise with the use of microcomputers in schools are discussed, e.g., funding, suitable computer programs, teacher training, equipment requirements, cost effectiveness, responsibility for computer use and management, and contingency plans for equipment breakdowns. The importance of feasibility and cost benefit studies and consideration of the organizational, behavioral, and managerial issues involved in planning for computer based programs in schools is emphasized. Twenty references are provided.

ED276099

Using Telecommunications for Principals' Professional Development.

Long, Claudia A.; Terry, Patricia D.

Apr 1986, 19p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Conference Paper (150); Project Description (141); Research Report (143)

Target Audience: Administrators; Practitioners

Major Descriptors: *Computer Uses in Education; *Information Networks; *Management Development; *Principals; *Telecommunications

This paper describes the development, operations, and effectiveness of the Principals' Computer Network (PCN)—an experimental program created (1) to allow principals to use their schools' microcomputers to access other principals' solutions to common instructional management problems; (2) to enable principals to request suggestions from their peers on specific problems; (3) to provide a network for sharing successful strategies and programs; and (4) to allow principals to expand their computer skills in a way directly relevant to their administrative roles. Online for an 11-week test period in the spring of 1985, the PCN included the following components: a bulletin board for general announcements; elementary and secondary education features boards, containing information from the "Principals' Yellow Pages"; an electronic mail system for private correspondence; news updates on the latest PCN developments; and a list of all PCN users with their personal and general system statistics. A survey of 38 participating principals showed that the electronic network system can stimulate information exchange among principals. Brevity of the operations period was the biggest drawback; and introducing the program in late spring, a busy time, prevented the full participation of many principals. Principals need more time to learn the system and need access to a home computer for evening and weekend use.

ED275078

The Instructional Leader as Middle Manager: The Principal's Role in Implementing a Technological Innovation.

McGee, Glenn W.

May 1986, 48p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986).

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Research Report (143); Review Literature (070); Conference Paper (150)

Target Audience: Administrators; Practitioners

Major Descriptors: *Administrator Evaluation; *Computer Oriented Programs; *Educational Administration; *Instructional Leadership; *Principals; *Program Implementation

Despite the widespread introduction of microcomputers into the nation's schools, tremendous variations exist in the frequency and success of their implementation. This study focuses on the principal's role as one possible cause of these variations. Recent research has identified two major role activities of principals: instructional leadership and school management. Instructional leadership activities, generally considered an important factor in creating effective schools, include goal setting, supervising instruction, and active decision making. School management activities, considered more "typical" and less dynamic in nature, include tasks such as record keeping, scheduling, and building operations. To examine the nature of these two roles and to determine their impact on the implementation of microcomputer use, data was collected from teachers, principals, and media center directors in a random sample of 130 elementary schools in northeastern Illinois. The findings show that although some elements of instructional leadership are associated with successful implementation, schools whose principals are skilled managers have the strongest computer curricula. Their effectiveness in coordinating and facilitating new programs suggests a new area of inquiry for the theory of instructional leadership. Five pages of references, two tables, and two figures are appended.

ED278146

Planning and Using a Computerized Instructional Management System.

McKinnon, Kim W.

24 Feb 1986, 30p. Paper presented at the Annual Meeting of the American Association of School Administrators (San Francisco, CA, February 21-24, 1986).

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Conference Paper (150); Non-classroom Material (055); Project Description (141)

Target Audience: Practitioners

Major Descriptors: *Cognitive Style; *Computer Managed Instruction; *Computer Uses in Education; *Educational Philosophy; *Management Information Systems

This document reviews a computer management system which uses as its substructure an outcome-based approach to curriculum development. It details the philosophical and pedagogical bases for the adoption of such a computer-managed instruction system and offers a wide range of practical suggestions for computer uses in education. The philosophical constructs underlining the goals of this program are consistent with the concepts of Outcome Based Education instructional delivery systems, which define curriculum development by instructional objectives and which dictate that the system be student centered, simple but powerful, decentralized, and accessible. This computer-managed instruction system provides for diagnosis and summative post-testing through application of an item bank, fashioned in linear vertical sequence through Rasch item response scaling and coded by format and complexity. In this way, the systems are used to evaluate student progress and instructional programs and provide indicators for student grouping and placement. The system also has the capability to prescribe an appropriate correction for students by incorporating a resource file coded to higher order thinking skills, learning styles, and instructional pedagogy as defined by Madeline Hunter. Recordkeeping is an important function of the system, as is the parent/school partnership program. IBM PCXT computers have been placed in each school site; they present many advantages to users. Detailed lists of systems operations, including diagnosis, prescription, reporting, and record keeping functions, conclude the document.

ED273256

New Technologies: Key to More Productive Schools.

National School Boards Association, Alexandria, VA.

1985, 43p. Summary of the Annual Meeting, Index: Education: Computers, Technology and Learning (1st, Dallas, TX, August 1-3, 1985).

Available from: National School Boards Association, 1680 Duke Street, Alexandria, VA 22314 ($9.00 plus shipping and handling).

EDRS Price—MF01 Plus Postage. PC not available from EDRS.

Document Type: Conference Proceedings (021); Review Literature (070)

Target Audience: Policymakers

Major Descriptors: *Boards of Education; *Computer Uses in Education; *Educational Objectives; *Educational Technology

Two questions—how school boards might create more productive schools using the tools of the electronic age, and how they might create new learning opportunities and overcome some of the problems schools now face—were addressed at the national conference summarized in this document. The report reviews the current status of public education today and previews where it may be tomorrow once school boards use new technological tools to lead the nation's schools. The problems caused by the uncertain and rapid changes in technology, are briefly discussed in the introduction. The first of three sections then discusses applications of

technology to the problems of education in the context of economic, demographic, employment, and educational trends. The magnitude of technological change and the future of education as it is linked to economic growth are also considered. Current uses of technology in schools for educational and administrative purposes are reviewed in the second part, including descriptions of specific educational technology projects. The third section presents practical suggestions for adopting appropriate policies, purchasing hardware, evaluating software, encouraging teachers, and locating the funds needed to implement a technology plan. A glossary of technological terms, a directory of resource persons for schooling and technology, and facts about the National School Boards Association (NSBA) conclude the report.

ED282333
Discipline Monitoring System: A School Self-Study Project for Montgomery County Public Schools.
Richardson, William M.; Splaine, Pam
1986, 5p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Project Description (141)
Target Audience: Practitioners
Major Descriptors: *Computer Uses in Education; *Database Management Systems; *Discipline; *Recordkeeping; *Student Characteristics; *Suspension

The Discipline Monitoring System (DMS) is a computer-assisted model allowing individual secondary schools to analyze their disciplinary actions. The Montgomery County Public Schools (Maryland) adopted this model to manipulate the following data: who is suspended, who is referred, who makes referrals, characteristics of these persons, and events (including location) surrounding the disciplinary incident. The idea is to discover trends and patterns contributing to disciplinary problems. The model's database management system can be run on schools' administrative microcomputers. Users can enter data from existing school records and generate predefined reports. Source material originates from student referral and suspension forms. Once administrators generate reports, they can discuss findings with staff and seek areas of possible improvement. Administrators can also use the information to make year-to-year comparisons and identify possible new trends. They can also identify student and teacher profiles possibly associated with a disproportionate number of suspensions and incidents. To benefit from the DMS, schools must first examine their disciplinary definitions and procedures. Since the model permits schools to do decentralized self-study projects, central office responsibility is lightened. Such projects will become increasingly feasible as schools are provided with more sophisticated hardware and software.

ED277366
Implementation of a District Computerized Instructional Management System: Barriers and Facilitators.
Terry, Patricia D.; And Others
Apr 1986, 40p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986). For another report on this project, see ED 277 367.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Research Report (143); Conference Paper (150)
Target Audience: Researchers
Major Descriptors: *Adoption (Ideas); *Computer Assisted Testing; *Computer Managed Instruction; *Mathematics Achievement; *Program Implementation

A two-part research and evaluation study was conducted to examine an elementary (K-8) school district's implementation of a computerized instructional management system, the "Computer-Managed Instruction/3000" (CMI), as a means of facilitating the assessment and updating of student mastery of 78 district-defined curricular objectives. The testing system consisted of a data bank of tests based on the district mathematics objectives, equipment to machine score student answer sheets, and reports detailing student mastery of the objectives. This system was piloted by administrators and teachers at four district-selected schools. A detailed interview schedule was developed to elicit such information as background in the district; knowledge of the CMI system, including how, why, and by whom it was selected; uses of the system for testing and instruction; technical problems; potential uses of the system; and its effects on school organization and instruction. Analysis of the responses of 49 school staff members—principals, resource teachers, teachers, and clerical staff from both pilot and nonpilot schools—identified a number of factors as keys to the implementation of the program: (1) planning; (2) communication and awareness of its purpose; (3) support from key personnel; (4) training; (5) technical issues and procedures; and (6) rewards and incentives for using the system. When viewed positively, these factors operated as facilitators to the acceptance and implementation of the system; however, when viewed negatively, the same factors operated as barriers. Data summaries are provided in Tables 1-7. The Study Interview Schedule and the Coding Matrix are appended, and references are provided.

ED276415
Administrative Policies for Increasing the Use of Microcomputers in Instruction.
Winkler, John D.; And Others
Jul 86, 79p.
Available from: Rand Corporation, 1700 Main Street, P.O. Box 2138, Santa Monica, CA 90406-2138 ($7.50).
EDRS Price—MF01 Plus Postage. PC not available from EDRS.
Document Type: Position Paper (120); Research Report (143); Test, Questionnaire (160)
Target Audience: Practitioners
Major Descriptors: *Administrative Policy; *Computer Assisted Instruction; *Instructional Innovation; *Microcomputers; *Policy Formation; *Teacher Participation
This report describes the results of a national survey of computer supervisors in 155 public school districts that currently own microcomputers. Data from this survey were used to examine the incentive value of a variety of administrative computer policies for encouraging more widespread participation by teachers in inservice training and use of microcomputers as a tool for instruction in subject matter classes. Such policies include technical support, rewards and incentives for teachers, and the involvement of teaching staff in decisions about the implementation of microcomputer-based instruction. The report presents the conceptual framework for the study; reviews the literature on improving participation in inservice training and encouraging educational innovations; describes the survey and presents the survey results; and discusses the implications of the findings for educational research and policy. Statistical data are presented in 12 tables, the survey instrument is appended, and references are provided.

Research

ED280616
What Makes a Team? The Composition of Small Groups for C.A.I.
Bellows, B. P.
Apr 1987, 15p.; Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987).
EDRS Price - MF01/PC01 Plus Postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Computer Uses in Education; *Elementary School Students; *Map Skills; *Peer Relationship; *Social Sciences
This study examined the task performance and social interaction of young children who used a computer to learn map skills. Specifically, ability and sex were examined in relation to students' achievement on a social studies task and in relation to student interaction in small groups. Subjects were 66 second grade students in three different classrooms. A total of 28 boys and 27 girls were assigned to dyadic or triadic treatment conditions. Results indicated that students in mixed-ability triads had significantly greater gains in achievement than students in uniform-ability groups, that boys and girls did equally well on the task, high-ability students were dominant in group interaction, and subjects most freqently gave and received terminal responses and rarely gave explanations. It is concluded that ability has a bearing on student interaction and achievement in small group computer learning situations.

ED282330
An Exploratory Study of Computer Use in Curriculum Development and Curriculum Management.
Cole, Dennis W.; And Others
Mar 1987, 22p.; Paper presented at the Annual Meeting of the Association for Supervision and Curriculum Development (New Orleans, LA, March 21-24, 1987).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Conference Paper (150); Test, Questionnaire (160); Research Report (143)
Target Audience: Researchers; Practitioners
Major Descriptors: *Computer Uses in Education; *Curriculum Development; *Educational Resources; *State Departments of Education
Little research has been done on the topic of computer use in curriculum development and curriculum management. This lack of information inspired a survey endorsed by the Colorado Association for Supervision and Curriculum Development (CASCD). After an initial survey of 106 subjects, including 50 state departments of education, 6 states were identified that presumably had had early exposure to computer use in education. The survey then focused on districts in these states, plus members of the CASCD, graduates at the University of Colorado, and districts cited on returned questionnaires. In most responses from the 81 computer-using

districts, the curriculum department was found to be responsible for computer use in curriculum work. The average sum spent on computer use was $20,000 a year. Most respondents employed from one to three full-time and one to five part-time personnel to operate the computers. The software used was developed locally by the district. The questionnaires revealed that computers were used for monitoring student progress, for efficiency, and for speed. Finally, state agencies provided personnel and financial support twice as often as other agencies. The document includes eight tables, a list of selected references, a copy of the survey, and two other appendices.

ED273264

Applications of Microcomputer Search-Type Adventure Games in Research on Spatial Orientation, Place Location, and Memory for Places.

Forsyth, Alfred S., Jr.

Apr 1986, 17p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986). Doctoral Dissertation, Utah State University.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Dissertation (041); Conference Paper (150)

Target Audience: Researchers

Major Descriptors: *Computer Simulation; *Intermode Differences; *Recall (Psychology); *Sex Differences; *Spatial Ability; *Student Attitudes

This study investigated place location learning from a simulated environmental exploration experience in terms of two variables: gender (both cognitive and affective effects) and presence and/or type of accompanying map. Subjects were 120 fourth and fifth grade students, who were randomly selected and assigned after stratification on gender. The students played a computer adventure game—Winnie the Pooh in the Hundred Acre Wood—for 40 minutes with either a labels-plus-drawings map, a labels-only map, a drawings-only map, or no map at all. Contrary to findings from previous studies of gender differences in spatial abilities, spatial skills, and attitudes toward computer activities (most of which reported results favoring boys), no significant differences regarding gender were found for either the cognitive or affective measures, and virtually all subjects enjoyed playing the game. As hypothesized, results showed that map groups scored significantly higher on a place location recall posttest than the no-map group, and that labels-plus drawings and labels-only groups outscored the other groups to a statistically significant degree. Follow-up tests 2 weeks after treatment showed high levels of retention of place location information. It is concluded that computer adventure game simulations of environmental exploration may represent an effective and enjoyable method for promoting place location learning for both sexes.

ED281485

Review of Research on the Cognitive Effects of Computer-Assisted Learning.

Mandinach, E.; And Others

Jul 1983, 88p.

EDRS Price—MF01/PC04 Plus Postage.

Document Type: Review Literature (070); Project Description (141)

Target Audience: Researchers

Major Descriptors: *Cognitive Processes; *Computer Assisted Instruction; *Computer Software; *Learning Theories; *Research Utilization

This review of the research on the cognitive effects of computer-assisted instruction begins with an overview of the ACCCEL (Assessing Cognitive Consequences of Computer Environments for Learning) research program at the University of California at Berkeley, which consists of several interrelated studies examining the acquisition of such higher cognitive skills as strategic planning knowledge, inductive reasoning, and deductive reasoning in computer learning environments. The context and theoretical issues in computer environments for learning are also discussed, including claims about such environments, distinctive features of these environments, and pedagogical and learning theories related to software design. Among the subject areas covered in this comprehensive literature review are: (1) individual differences in aptitude and ability and ATI (aptitude treatment interaction) research, including cognitive styles and affective factors; (2) problem solving and knowledge states; (3) instructional psychology; (4) planning; and (5) computer-assisted instruction, computer tutors, and artificial intelligence. Characteristics of software selected for study—WUMPUS, Creative Play, Rocky's Boots, Yellow Light, and Pattern Discovery—are described, and a discussion of the implications of the research reviewed for the design and implementation of future research concludes the report. An 11-page bibliography is provided.

ED277335

Differential Effectiveness of Three Kinds of Computer-Assisted Instruction.

Ngaiyaye, Morven S. W.; VanderPloge, Aric

Apr 1986, 15p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Research Report (143); Conference Paper (150)

Target Audience: Researchers

Major Descriptors: *Academic Achievement; *Computer Assisted Instruction; *Disadvantaged Youth; *Hypothesis Testing; *Intermode Differences

This study of the effects of computer-assisted instruction (CAI) on the academic achievement of educationally disadvantaged students in grades 2 through 8 in four urban schools tested three hypotheses: (1) supplementary CAI programs are significantly more effective than non-CAI supplementary instruction approaches for disadvantaged students; (2) school-based supplementary CAI programs are significantly more effective than district-based programs for this group; and (3) vendor-based programs are less effective than programs developed within the system by school personnel. The effects of three types of CAI programs are compared—a vendor supplied microcomputer system, a system-wide CAI program, and a school-based system—with both experimental and control groups for each program. The areas of study included reading comprehension; vocabulary; and mathematical concepts, problem-solving, computation, and composite skills. Analyses of the data failed to produce sufficient evidence to support the contention that disadvantaged students learned more when exposed to CAI, nor was there strong evidence that the impact of CAI varied with the system or the approach used. This report includes the purpose and objectives of the study; information on sample selection and procedures for data analysis and interpretation; study findings; and recommendations for future studies. Tables display data on the study sample by school, program, sex, and grade; pre- and posttest scores; and estimated posttest mean scores. Appendices provide a two-page reference list and analyses of the data on the six areas of study.

Simulation

ED279300

Demonstrating Computer Simulation Development for Intermediate and Middle School Applications.

Fyffe, Darrel W.; And Others

Nov 1984, 10p.; Paper presented at the Annual Conference of the National Council of States Inservice Education (9th, Orlando, FL, November 16-20, 1984).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Computer Programs (101); Position Paper (120); Conference Paper (150)

Target Audience: Practitioners

Major Descriptors: *Computer Simulation; *Computer Software; *Microcomputers; *Teacher Developed Materials

This discussion of the use of microcomputers to simulate complex situations for classroom use describes the advantages of using simulations, including their adaptability to many subject areas and content fields, their power to explain complex concepts, and their ability to provide variations for individual users. As an example, seven objectives that were important to social studies teachers before the advent of computers are identified, including strategies (new experiences, new sources of information), content (facts and concepts), skills (inquiry and social interaction), and attitude. It is pointed out that simulations can accomplish all of these objectives except the strategy of investigating new sources of information. It is suggested that teachers who wish to develop simulations for their students must select an appropriate event, which requires careful consideration of the relationships involved, the terminology to be used, the adaptability of the event for graphic or textual representation by a microcomputer, and the characteristics of the intended learners. A sample simulation program is briefly described, and an example is given of programming in BASIC which allows inputs while the program is operating and the graphics display is being generated. The BASIC commands for this routine are listed and explained. Teachers who wish to develop their own simulations are advised to consider these conditions, and the use of the BASIC programming technique is advocated as a means of developing a more varied, active simulation. Seven references are listed.

ED282915

The Use of Simulations in Learning and Transfer of Higher-Order Cognitive Skills.

Mandinach, Ellen B.

Apr 1987, 19p. Paper presented at the American Educational Research Association (Washington, DC, April 20-24, 1987).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Project Description (141); Conference Paper (150)

Target Audience: Researchers

Major Descriptors: *Cognitive Processes; *Computer Assisted Instruction; *Curriculum Development; *Learning Processes; *Simulation; *Transfer of Training

The present research addresses the issues of whether there exist certain cognitive skills that facilitate transfer, and whether such skills are themselves transferable across domains. Of primary concern is the instructability of such skills. The Systems Thinking and Curriculum Innovation Project (STACI) is a two-year research project testing the potentials and effects of using the systems approach to teach content specific knowledge and general problem solving skills. The content of existing high school science courses has been integrated with instruction and computer software that emphasize higher-order cognitive skills. The study also examines the effectiveness of using Structural Thinking Experimental Learning Laboratory with Animation (STELLA) to teach system dynamics and content knowledge. Four science teachers at a high school in Vermont are using STELLA and systems thinking in their courses. Teachers and researchers are working in a collaborative effort. The teachers' primary goal is to infuse the classes with systems thinking and to determine if the curriculum innovation is an effective way of teaching certain topics and skills; the researchers' goal is to document the curriculum innovation and to examine its cognitive consequences. A primary outcome of the project will be to disseminate information about the theory that underlies systems thinking and the methods by which the approach has been infused in the curricula.

ED282521

Computer Simulation and Its Impact on Educational Research and Practice.

Ohlsson, Stellan

1986, 65p.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Review Literature (070); Research Report (143)

Target Audience: Policymakers; Researchers

Major Descriptors: *Cognitive Psychology; *Computer Assisted Instruction; *Computer Simulation; *Educational Research; *Psychological Studies

This essay summarizes the theory and practice of computer simulation, assesses the state of the art of simulation with respect to pedagogically relevant processes like learning, and speculates about the impact of such simulations on pedagogical research and practice. Arguing that the use of computer simulation as a technique for building formal models of mental processes forces the cognitive psychologist to consider the content of strategic or heuristic knowledge, the paper begins by discussing such philosophical concepts as the formalization of theories, the distinction between theories and models, and the notion of a research program. The rationale and work mode of simulation research are then summarized, and a review of the literature illustrates the range of phenomena with educational relevance to which the simulation technique has been applied. The new connectionist approach to simulation is described, and concern is expressed about the way in which knowledge appears in connectionist theories. The most direct interaction of computer simulation with education in the future is predicted to be through such computerized teaching tools as intelligent tutoring systems and systems for automatic cognitive diagnosis. It is concluded that a traditional science-to-practice knowledge transfer will occur to the extent that simulation models contribute to the improvement of psychological theories with pedagogical relevance, and that computerized teaching devices will have a dramatic effect on cognitive research methodology by providing access to information on the behavior of students in real learning situations. A list of 170 references is provided.

ED282753

Learning from Computer Simulations.

Okey, James R.; Oliver, Ronald G.

Apr 1987, 8p. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching (60th, Washington, DC, April 23-25, 1987).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Research Rreport (143); Conference Paper (150)

Target Audience: Practitioners

Major Descriptors: *Computer Science Education; *Computer Simulation; *Elementary School Science; *Learning Strategies; *Science Instruction; *Student Attitudes

This study investigated the types of tactics and strategies students used in working with computer simulations and examined if the skills acquired when using the computer simulation could be applied in other settings. Sixth grade students (N=50) from three different schools participated in the study and were observed over a period of six weeks. Tape recordings were made of the groups working with the computer simulation and individual interviews were conducted. Four test measures were completed by each student (one prior to the computer work and three afterward). The prior measure tested the logical thinking ability of students and

the three measures which followed the use of the simulation measured attitudes toward computing, knowledge of the procedure and skills in using the simulation, and the ability to transfer simulation skills to new topics. It was found that as the students used the computer simulation more they acquired more of the knowledge needed and appeared to be able to solve paper and pencil problems like those found in the simulation. Attitudes were also more favorable for students using the computer simulation the most. The program gains, however, did not translate into greater ability to transfer skills to new, non-computer tasks.

ED281528

Representing System Behaviors and Expert Behaviors for Intelligent Tutoring. Technical Report No. 108.

Towne, Douglas M.; And Others

Feb 1987, 71p.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Project Description (141)

Target Audience: Researchers

Major Descriptors: *Artificial Intelligence; *Computer Assisted Instruction; *Computer Simulation; *Interactive Video; *Training Methods

Simulation-based software tools that can infer system behaviors from a deep model of the system have the potential for automatically building the semantic representations required to support intelligent tutoring in fault diagnosis. The Intelligent Maintenance Training System (IMTS) is such a resource, designed for use in training troubleshooting skills and in conducting research into intelligent instruction. The IMTS incorporates a generalized model of an expert diagnostician, termed Profile, to evaluate student performance and to recommend improved fault isolation strategies. The equipment expert uses domain-independent editing tools to construct the simulation using previously defined generic objects. As the diagrams are interactively assembled, an underlying representation of system content and structure is automatically produced, allowing the graphical simulation to change in response to student actions during training sessions. The first application of the IMTS will be as a trainer of fault isolation skills for the Bladefolding system of the SH-3H helicopter. In this application, the IMTS is coupled to the Generalized Maintenance Training System (GMTS), a videodisc-based simulator that displays high-resolution color views of the controls and indicators as they are manipulated by the student. Directions for future research are indicated and 21 references are provided.

Tests/Testing

ED284902

The Robustness of LOGIST and BILOG IRT Estimation Programs to Violations of Local Independence.

Ackerman, Terry A.

Apr 1987, 25p. Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Conference Paper (150); Research Report (143)

Target Audience: Researchers

Major Descriptors: *Computer Software; *Latent Trait Theory; *Test Construction; *Test Items; *Test Theory

One of the important underlying assumptions of all item response theory (IRT) models is that of local independence. This assumption requires that the response to an item on a test not be influenced by the response to any other items. This assumption is often taken for granted, with little or no scrutiny of the response process required to answer individual test items. Ackerman and Spray (1986) proposed a dependency model with which the interaction of such factors as the amount and direction of item dependency, item difficulty and discrimination, and item order or sequence effects could be simulated. In the present study, item response data were generated with varying degrees of response dependency using their model. These data were used to determine the robustness of the IRT calibration programs LOGIST and BILOG to violations of local independence. Results suggest that calibrated dependent item parameters tend to be overestimates of the original item parameters. Ability estimates, however, were more affected as the degree of dependency increased. A description of the ACT Mathematics Usage Test is appended.

ED283870

An Empirical Assessment of Selected Software Purported to Raise SAT Scores Significantly When Utilized with Short-Term CAI on the Microcomputer.

Davis, Wesley D.

Jul 1985, 102p.

EDRS Price—MF01/PC05 Plus Postage.

Document Type: Research Report (143)

Major Descriptors: *College Entrance Examinations; *Computer Assisted Instruction; *Computer Software; *Scores; *Test Coaching

This study evaluated Krell's 1981-82 Scholastic Aptitude Test (SAT) preparatory series software purported to raise students' scores substantially after only a short term of computer-assisted instruction (CAI). Forty-eight college-bound juniors from Escambia County (Florida) were assigned to experimental and control groups. A two-phased pre- and post-test design was used. Both groups received 15 hours of CAI, but during different phases of the study. Data were collected through the administration of one SAT pretest, two SAT posttests, the Otis-Lennon School Ability Test, the Witkin Group Embedded Figures Test, and a student questionnaire for demographic information. Ten hypotheses concerning the effects of CAI, cognitive styles, socioeconomic status, gender, IQ, grade point average, parents' educational attainment, parents' occupational status, number of siblings, and college majors on SAT score gains were tested using non-parametric statistics. With one partial exception, all hypotheses were accepted in the null form. The results showed: (1) Krell SAT software utilized under controlled CAI conditions produces only modest group score gains, and (2) individual student score gains under these conditions, by contrast, may be high. That is, group SAT score gains will seldom exceed chance expectations and will be of little practical consequence. On the other hand, individual students may evidence significant gains, which is consistent with the publisher's claim. The study includes a nine-page reference list.

ED283857

Toward Intelligent Systems for Testing. Technical Report LSP-1.

Lesgold, Alan; And Others

Mar 1987, 32p.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Adaptive Testing; *Artificial Intelligence; *Cognitive Measurement; *Computer Assisted Testing; *Diagnostic Tests; *Individualized Instruction

This report illustrates one way in which the technologies of testing might combine with cognitive science techniques to help steer instruction. Steering testing is brief diagnostic testing that steers, or individualizes, the course of instruction. Steering testing uses simple heuristics for reasoning about the level of a student's competence in a particular subskill and intelligently manufactures practice opportunities that will be especially revealing about the student's current competences. Theoretically, steering testing should permit a partly logical constraining of diagnosis and should be based on a representation of the knowledge needed to exercise the skill it purports to measure. Four types of knowledge, involved in dealing with a student, need clarification when designing computer systems for steering testing: (1) domain expertise; (2) curriculum knowledge; (3) planning knowledge; and (4) treatment knowledge. In addition, a student model, a knowledge structure specifying which subskills a student is thought to know or to not know, is embedded in the curricular goal structure of the system. When a diagnosis is needed, the student model is examined to identify areas of competence about which more information is needed. These areas represent constraints on the type of test item that will be informative. Once the constraints are posted, an intelligent item generator constructs test items that satisfy them. To illustrate these ideas, an intelligent computer-based tutor, with a problem solving mode, that teaches basic electrical principles is discussed.

ED282935

Participants' Reactions to Computerized Testing.

Moe, Kim C.; Johnson, Marilyn F.

22 Aug 1986, 16p. Paper presented at the Annual Meeting of the American Psychological Association (Washington, DC, August 22-26, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Conference Paper (150); Research Report (143); Test, Questionnaire (160)

Target Audience: Researchers

Major Descriptors: *Adaptive Testing; *Comparative Testing; *Computer Assisted Testing; *Student Attitudes; *Testing Problems

This study investigated participants' reactions to computerized testing and assessed the practicability of this testing method in the classroom. A sample of 315 secondary-level students took a computerized and a printed version of a standardized aptitude test battery and a survey assessing their reactions to the computerized testing. Overall reactions to the computerized test were positive. Students liked the computerized test for the ease in answering (49 percent), for being "faster" (30 percent), untimed (25 percent), and "fun" (11 percent). The most common complaint involved eye fatigue (32 percent). Girls reported problems and nervousness during the computerized test significantly more frequently than did boys. Overall, students reported that computerized testing can be a workable alternative to printed standardized testing. Administrators' reactions were mixed; examiners were excited about this new mode of test administration but had some difficulty with the planning and logistics of administration. Suggestions for improving computerized testing and the impact of the changing technology are discussed. A copy of the survey questions and excerpts from student surveys are appended.

ED281872
Computerized Adaptive Testing: A Comparison of the Nominal Response Model and the Three Parameter Logistic Model.
DeAyala, R. J.; Koch, William R.
Apr 1987, 20p.; Paper presented at the Annual Meeting of the National Council on Measurement in Education (Washington, DC, April 21-23, 1987).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Research Report (143); Conference Paper (150)
Target Audience: Researchers
Major Descriptors: *Adaptive Testing; *Comparative Testing; *Computer Assisted Testing; *Computer Simulation; *Latent Trait Theory; *Nominal Response Model
A nominal response model-based computerized adaptive testing procedure (nominal CAT) was implemented using simulated data. Ability estimates from the nominal CAT were compared to those from a CAT based upon the three-parameter logistic model (3PL CAT). Furthermore, estimates from both CAT procedures were compared with the known true abilities used to generate the simulated data. Results showed that the nominal CAT's ability estimates were highly correlated with those of the 3PL CAT as well as with the true abilities. Furthermore, the nominal CAT had a significantly higher association with negative true than did the 3PL CAT, and it also had significantly lower standard errors of estimate than did the 3PL CAT. However, the nominal model-based CAT had difficulty estimating positive thetas and had a poor convergence rate. In contrast, the 3PL CAT had a high convergence rate and its performance was not affected by whether the true abilities were positive or negative. Potential reasons for the nominal CAT's high nonconvergence rate as well as implications for computerized adaptive testing were discussed.

ED273088
Dimensions of Computerized Rasch Applications in ESL Testing.
Dell, Carl W., Jr.
[1986], 45p.
EDRS Price—MF01/PC04 Plus Postage.
Document Type: Reports—Evaluative (142)
Major Descriptors: *Computer Assisted Testing; *English (Second Language); *Language Tests; *Statistical Analysis; *Test Construction; *Test Items
The most appropriate statistical model for the small-scale (n=100) studies common in language testing research is the Rasch one-parameter logistic model. The Rasch model provides a wide range of options for conducting research, refining existing examinations, and developing tailored (computerized adaptive) language tests. Three investigations using this analysis in testing for English as a second language (ESL) illustrate its usefulness. One looked for possible item bias in an ESL placement test battery, a second investigated the identification of inappropriate answers suggesting cheating, and a third involved the development of a computerized adaptive grammar and reading test. Several charts and a three-page list of references conclude the report.

ED280895
A Computer Program for Adaptive Testing by Microcomputer.
Linacre, John M.
Apr 1987, 30p.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Project Description (141); Computer Programs (101)

Major Descriptors: *Adaptive Testing; *Computer Assisted Testing; *Individual Testing; *Latent Trait Theory; *Programing; *Test Format

This paper describes a computer program in Microsoft BASIC which selects and administers test items from a small item bank. The level of the difficulty of the item selected depends on the test taker's previous response. This adaptive system is based on the Rasch model. The Rasch model uses a unit of measurement based on the logarithm of the possibilities of correctly answering a particular question. The approach used in this program is based on the developments of Rasch theory by Benjamin Wright. In this program, the questions to be asked are typed into a file. Each question has an identifying number, the text of the question, the five possible choices, the number of the correct answer, and a preliminary estimate of the question's difficulty. Details of each test session are on another file. This file includes the name and estimated ability of the test taker, each question asked, and the responses. Through the program, the computer counts the number of correct answers and gives a numerical estimate of examinee's ability. A BASIC listing of the program to administer and score a test and six figures illustrating various operations of this computer adaptive testing process follow the study.

ED274714

Comparison and Equating of Paper-Administered, Computer-Administered and Computerized Adaptive Tests of Achievement.

Olsen, James B.; And Others

Apr 1986, 46p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986).

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Conference Paper (150); Research Report (143)

Target Audience: Researchers

Major Descriptors: *Achievement Tests; *Adaptive Testing; *Comparative Testing; *Computer Assisted Testing; *Test Format

Student achievement test scores were compared and equated, using three different testing methods: paper-administered, computer-administered, and computerized adaptive testing. The tests were developed from third and sixth grade mathematics item banks of the California Assessment Program. The paper and the computer-administered tests were identical in item content, format, and sequence. The computerized adaptive test consisted of an adaptive subset of the computer administered test. A total of 575 students were administered two of the three types of tests in varying sequence. PLATO/WICAT System 300 computers were used to administer the tests. Although the paper and computer-administered tests contained 55 or 62 items, the adaptive test usually contained 20 items. Item response theory and analysis of variance were performed. Results supported the comparability of paper-administered and computer-administered tests. The computer-administered test required half to three-quarters as much testing time as the paper and pencil test; the adaptive test required one-fourth as much time as the paper and pencil test. Scores tended to be lower on the second test administered. Ability estimates for all three tests were highly correlated. Both the two- and the three-parameter item response theory model were suitable. Three pages of references are included. The two appendixes consist of: (1) comparisons of item parameters; and (2) test information and standard error curves.

ED279693

Position Paper on the Potential Use of Computerized Testing Procedures for the National Assessment of Educational Progress.

Reckase, Mark D.

4 Sep 1986, 20p. One of 46 papers commissioned by the Study Group on the National Assessment of Student Achievement and cited in Appendix B to their final report, *The Nation's Report Card* (ED 279 662). For other papers in this group, see ED 279 663-707.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Position Paper (120)

Major Descriptors: *Achievement Tests; *Adaptive Testing; *Computer Assisted Testing; *Educational Assessment; Educational Testing; *Testing Programs

The current technology of computerized testing is discussed, and a few comments are made on how such technology might be used for assessing school-related skills as part of the National Assessment of Educational progress (NAEP). The critical feature of computerized assessment procedures is that the test items are presented in interactive fashion, allowing the examinee and the computer to alternate in transmitting information. Two of the more popular of the many possible procedures are computerized adaptive testing (CAT) and computerized personality assessment. Advantages of CAT (and other computerized assessment procedures) include flexibility in item selection and administration time, efficiency, greater test security, and clerical processing power. Disadvantages include the cost of the computer equipment, amount of needed computer

storage power, and the quality of graphic presentations on the cathode ray tube screen. Other factors relating to computerized testing are: (1) item types; (2) dimensionality of tests; (3) sampling of the content domain; (4) effects of the interaction of mode of presentation and test item; (5) equating of procedures, especially CAT, with less precise paper and pencil tests; (6) test quality—balancing test length versus precision; (7) item pool characteristics; (8) item selection; (9) test scoring; (10) determining the final item (test length); (11) human factors; and (12) the impossibility of omitted items. Testing of students with disabilities is a promising application of computerized assessment for NAEP.

ED274680
MCATL: A Language for Authoring Computerized Adaptive Tests.
Vale, C. David
11 Nov 1985, 27p.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Project Description (141)
Major Descriptors: *Adaptive Testing; *Authoring Aids (Programing); *Computer Assisted Testing; *Programing Languages; *Test Construction

The specification of a computerized adaptive test, like the specification of computer-assisted instruction, is easier and can be done by personnel who are not proficient in computer programming if an authoring language is provided. The Minnesota Computerized Adaptive Testing Language (MCATL) is an authoring language specifically designed for specifying adaptive tests. Its 14 statements can be grouped into five functions: test division, administration control, scoring, reporting, and customizing. The first four categories provide statements for specifying most types of adaptive tests with minimal programming effort; the fifth category provides an interface with standard programming languages for tests that cannot be directly specified in MCATL. A formal specification of MCATL in Backus Naur Form and a practical example of MCATL are provided.

ED279708
CATs, Testlets, and Test Construction: A Rationale for Putting Test Developers Back into CAT.
Wainer, Howard; Kiely, Gerard L.
Sep 1986, 46p. Part of the Program Statistics Research Technical Report Series.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Research Report (143)
Major Descriptors: *Adaptive Testing; *Computer Assisted Testing; *Item Banks; *Test Construction; *Test Format; *Test Validity

Recent experience with the Computerized Adaptive Test (CAT) has raised a number of concerns about its practical applications. The concerns are principally involved with the concept of having the computer construct the test from a precalibrated item pool, and substituting statistical characteristics for the test developer's skills. Problems with CAT that can arise in practice are related to context effects (item location, cross-information, unbalanced context), lack of robustness, item difficulty ordering, and high technology factors. A variety of traditional options to circumvent these problems are explored, and a new methodology for solving them is offered. In order to use the testing efficiencies of CAT and the experience of test developers, this study proposes the bundling of items into "testlets." Items in testlets can be arranged hierarchically or linearly to yield increased efficiency, but the paths an examinee can follow are strictly determined. One potential drawback of the testlet approach is that the aggregate of items is treated as a unit, and it may be difficult to replace pieces of it independently of the others.

SUBJECT APPLICATIONS

Agricultural Education

ED282065

Year 2000 Computerized Farm Project: Creating an Extension Management Education Environment. Faculty Paper Series 86-10.

McGrann, James M.; Johnson, Jeffrey W.

Jul 1986, 15p. Paper presented at the American Agricultural Economics Association Meeting (Reno, NV, July 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Project Description (141); Conference Paper (150)

Major Descriptors: *Computer Oriented Programs; *Computer Software; *Extension Education; *Farmers; *Farm Management; *Microcomputers

This paper describes the progress to date of a project to develop an educational environment to train farmers, ranchers, and staff in the use of microcomputers and economic and financial management. The project is located at the Stiles Farm, a 3,300-acre foundation farm in central Texas. A training center has been built at the farm to facilitate educational and demonstration efforts. Between May 1984 and November 1985, seven short (three-day) courses in such computer applications as farm and ranch accounting and beef cattle performance record systems were conducted; farmers who participated rated them very highly. Participants had hands-on use of the computer and a low pupil-teacher ratio. However, the level of attendance at the short courses has been somewhat disappointing, perhaps because the audience for such in-depth courses is relatively limited. The center has also been used as a demonstration and training ground for Extension agents. The center has a microcomputer software library, with software donated by vendors for topical areas where large numbers of programs are available, such as accounting, livestock performance records, and crop record systems. A management information system (MIS) was created for the Stiles Farm and is in the process of being implemented. Further study of the MIS is needed to determine how much integration will be cost efficient.

ED276823

Farm Management Extension Programs and the Use of Microcomputers on Farms. Faculty Paper Series 85-3.

McGrann, James M.; And Others

Nov 1985, 18p. Paper presented at the Meetings of the Organisation for Economic Cooperation and Development (Paris, France, November 5-8, 1985).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Review Literature (070); Conference Paper (150)

Major Descriptors: *Agency Role; *Computer Oriented Programs; *Extension Education; *Farm Management; *Microcomputers

The Cooperative Extension Service faces the challenge of helping United States farmers and ranchers use microcomputers in managing their farms. Farm management extension education programs are delivered to farmers and ranchers through such activities as (1) local meetings and workshops organized by county agents and producer advisory groups, (2) regional meetings, (3) published information in the farm press or from the extension communication divisions, (4) radio and television, and (5) limited use of computer networks. A majority of the agricultural clientele for on-farm microcomputers have looked to the Cooperative Extension Service for guidance on software and hardware purchasing. Extension services provide this information through large regional meetings, smaller in-depth courses, and the development and distribution of software, particularly decision aid software or software to address specific problems. Part-time consultants in finance, computing, and other fields are used to help farmers gain more farm management skills using microcomputers. The future role of on-farm microcomputer extension programs will focus on user education and the use of electronic technology to access relevant information more effectively. The farm management extension specialist will play a major role in defining needs, designing systems, and providing educational support. Extension programs will focus on describing decision processes and information needs and communicating these to researchers and software developers.

ED276822

Issues Related to Microcomputer Agricultural Software Design and Distribution in Developing Countries. Faculty Paper Series 85-6.

McGrann, James M.

Dec 1985, 17p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Position Paper (120)
Major Descriptors: *Agriculture; *Computer Oriented Programs; *Computer Software; *Delivery Systems; *Developing Nations; *Microcomputers

This paper deals with the issues related to the design and distribution of microcomputer software, focusing on agricultural software and its users in developing countries (researchers, Extension educators, planners, lenders). The paper is organized in four sections that discuss the following topics: defining the audience and software needs; software evaluation; steps in software development; and software distribution and maintenance support. The paper provides general information about these areas and offers some specific guidance related to software development and development of users' manuals and other consumer helps. Appendixes identify areas in which microcomputers may be used in developing countries for finance and economics and summarize the components of microcomputer software design.

Business Education

ED278854
Computer Applications: Using a Data Base.
Briggs, Dianna; And Others
1986, 79p.
EDRS Price—MF01/PC04 Plus Postage.
Document Type: Teaching Guide (052)
Target Audience: Teachers; Practitioners
Major Descriptors: *Business Education; *Computer Literacy; *Computer Science Education; *Database Management Systems; *Databases

This unit of instruction provides the teacher with assistance when teaching database use on the computer in secondary and postsecondary business education classes. Section I is the introduction addressed to the teacher. It provides instruction on how to proceed with the unit, types of software available, and where to use this material within the business curriculum. Section II, the introduction of a database to the student, provides a suggestion for getting started. This initial instruction includes lecture, discussion, and explanation of terms to the students. Some exercises are provided to help students visually understand what a database program will do. Examples are provided for a learning activity (creating a membership list) for four software programs: Appleworks, Data Handler, dBase III, and PFS: File. The activities for use in the classroom are designed to provide the teacher with two applications for the use of a database. These two activities provide instructional objectives, information for creating and using a database, and information for printing useful reports. Information is provided to help students develop additional activities with the software program. An appendix contains explanations of terminology, sample printed reports from the learning activity, and a list of references.

ED278852
Computer Applications in Marketing. An Annotated Bibliography of Computer Software.
Burrow, Jim; Schwamman, Faye
Jun 86, 99p.
EDRS Price—MF01/PC04 Plus Postage
Document Type: Reference Materials—Bibliographies (131)
Major Descriptors: *Advertising; *Business Administration; *Computer Uses in Education; *Courseware; *Distributive Education; *Marketing

This bibliography contains annotations of 95 items of educational and business software with applications in seven marketing and business functions. The annotations, which appear in alphabetical order by title, provide this information: category (related application), title, date, source and price, equipment, supplementary materials, description (content review, evaluation of educational complexity and quality), use level, and length. The marketing and business functions by which the software is categorized are: product development, pricing/finance, promotion, distribution, operating, management/decision making, and business basics. A contents index enables users to locate the relevant entries for each category. Software is suitable for secondary and postsecondary marketing education.

ED276832
Six Introductory Lessons for the Microcomputer Spreadsheet. Student's Workbook with Teacher's Key.
Chenault, Shirley

Dec 1986, 20p. Paper presented at the Annual Convention of the American Vocational Association (Dallas, TX, December 5-9, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Teaching Guide (052); Conference Paper (150); Instructional Material (051)

Target Audience: Teachers; Students; Practitioners

Major Descriptors: *Accounting; *Computer Oriented Programs; *Computer Software; *Microcomputers; *Programing

This document contains six lessons for a class on using computer spreadsheets. Each lesson contains an objective, terminology, and directions for step-by-step completion of the lesson activities. Worksheets are included for teachers to replicate and hand out or to use as overhead transparencies. The lessons cover the following concepts: introduction to spreadsheets, spreadsheet placement terminology and formula insertions, spreadsheet cursor movements, creating a spreadsheet, entering formulas into spreadsheet cells, entering data and formulas onto the spreadsheet, formatting cells, and correcting cells. A sample advanced lesson, notes to the teacher, and suggested resources are included in the package.

ED270678

The Business Education Student and Microcomputers: Sources of Influence and Information.

Remp, Ann M.

8 Nov 1985, 28p. Paper presented at the Annual Woman Researcher Conference (Kalamazoo, MI, November 8, 1985).

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Business Education; *Computer Literacy; *High School Students; *Information ources; *Microcomputers; *Sex Differences

Several researchers have stated that male and female students have different microcomputer experiences which result in qualitatively different computer literacy. Data suggest that differences may result from different guidance to the student from family and school. A descriptive study was undertaken to discover the information resources and influences with whom or with which business education students interact concerning microcomputers. High school students (N=526) from 26 business education classes in 11 southeastern Michigan schools responded to a survey on background information, persons with whom they discuss microcomputers, persons who have influenced them, and kinds of sources they would prefer to seek given specific microcomputer related tasks. Analysis of responses supports the gender differences identified in the earlier literature. While students of both genders reported favorable attitudes toward microcomputers in general, they differed in their communications about microcomputers. More male students reported that persons were general contacts and significant influences than did female students. Female students reported talking about computers equally to men and women, while male students reported that four-fifths of their contacts were male. Nearly one-half of the contacts reported by males were friends, with family members making the next largest group. Female students reported family contacts more often than they did friends. In regard to non-personal resources, female students were more positive than males toward the use of visual materials, while male students were more positive toward reading than were female students. These findings suggest that, although students in general appear to have the necessary confidence and interest in using microcomputers, they may need help in developing wider sources of information in order to succeed.

ED278866

Computer Applications: Using Electronic Spreadsheets.

Riley, Connee; And Others

1985, 62p.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Accounting; *Business Education; *Computer Oriented Programs; *Computer Software; *Information Processing; *Management Information Systems

This instructional unit is intended to assist teachers in helping students learn to use electronic spreadsheets. The 11 learning activities included, all of which are designed for use in conjunction with Multiplan Spreadsheet Software, are arranged in order of increasing difficulty. An effort has been made to include problems applicable to each of the following areas: basic business, secretarial, administrative support, information processing, marketing, and accounting. Topics covered in the individual lessons include operating a spreadsheet program, formatting an electronic spreadsheet, entering and saving data, creating a new electronic spreadsheet from an existing one, rearranging and replacing data, changing data on an electronic spreadsheet and understanding the effect of new "what if" projections, printing an electronic spreadsheet, entering formulas, copying data,

printing tables, making interest projections, and organizing and creating a new spreadsheet by integrating all of the aforementioned concepts. Each lesson includes a lesson title, objectives, list of needed teaching aids and references, teaching outline, outcomes, learning activity, instructions, and reference data necessary to complete the activity.

ED276870
Microcomputer Usage in Secondary Marketing Education. A National Study.
Searle, A. Gary
6 Dec 1986, 14p. Paper presented at the Annual Convention of the American Vocational Association (Dallas, TX, December 6, 1986).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Oriented Programs; *Computer Software; *Educational Needs; *Marketing; *Microcomputers

A study was conducted to determine microcomputer hardware, software, and inservice components of secondary marketing education programs. A questionnaire was developed and sent to 420 teacher-coordinators in 42 states. A total of 225 (54 percent) usable returns were tabulated at the University of Wisconsin-Stout Computer Center. Results of the study were compiled in these six categories: hardware, instructional software, operations software, teacher experience, inservice needs, and microcomputer availability. The study concluded that Apple is the most popular brand of microcomputer in secondary marketing programs. A wide variety of instructional and operations software is available and presently being used in marketing education—four programs were listed as most popular in instructional uses: Jeans Factory, Lemonade Stand, Enterprise Sandwich Shop, and Profit and Loss. Most popular operations software programs were Apple Grade Book, Apple Works, VisiCalc, Print Shop, and others. Results showed that secondary marketing educators definitely need help with software review/evaluation and practical applications for their microcomputer curriculum. Recommendations were made for preservice and inservice programs for marketing teachers in the use of microcomputers and for further research to determine educational needs. (An addendum to the report provides 30 vendors' addresses and four pages of instructional and operations software.)

English as a Second Language and Foreign Languages

ED271024
Computer Adventure Games: Toys as Tools for Teaching.
Baltra, Armando
Mar 1986, 8p. Paper presented at the Annual Meeting of the Teachers of English to Speakers of Other Languages (20th, Anaheim, CA, March 3-8, 1986).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Teaching Guide (052); Conference Paper (150)
Target Audience: Teachers; Practitioners
Major Descriptors: *Communicative Competence (Languages); *Computer Assisted Instruction; *Computer Software; *English (Second Language); *Games; *Media Selection

Adventure games designed for use on home computers are a potentially powerful instructional resource in English as a second language because they promote problem-solving using the target language and are highly motivating to students. The games, whose objective is usually for the user to defeat an obscure force and recover a precious object, are varied in design, and are most suitable for the development of communicative fluency in the language when they (1) do not focus on the mere manipulation of vocabulary and/or grammatical forms, (2) encourage meaningful discovery learning without ignoring meaningful reception learning, (3) create opportunities for interpersonal interaction, and (4) integrate communicative abilities. Research has found challenge, fantasy, and curiosity to be the most crucial motivating factors. Elements of computer games that will contribute to second language learning include clear goals, use of language to achieve the goals but not as the goals themselves, feedback, an uncertain outcome, multiple difficulty levels, use of hidden information as a communicative device, unpredictability, randomness, and engaging the user's curiosity and search for novelty. Teachers can use these criteria to find effective materials and to help in the development of new or improved software.

ED271021
Computer Assisted Language Learning: Using L1 Software with L2 Students.
Baltra, Armando

1984, 10p. Paper presented at the Annual Meeting of the Teachers of English to Speakers of Other Languages (18th, Houston, TX, April 1984).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Review Literature (070); Conference Paper (150)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Assisted Instruction; *Courseware; *English (Second Language); *Games; *Microcomputers

The use of two types of commercially available Apple computer educational software in English for the development of accuracy and fluency in students of English as a second language is described. One type of program is aimed at the drilling and practice of grammar in English. Some of these programs have interesting formats and allow the teacher to edit their content easily to accommodate the student's needs. The second program type is the adventure game, which is found to be inherently attractive to students and to promote lively small-group interaction. This type is recommended for adaptation aimed at the development of communicative fluency.

ED274162

Sentence Building with a Macintosh Microcomputer.

Bennett, Ruth

[1986], 20p.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Evaluative Report (142)

Major Descriptors: *American Indian Education; *Computer Assisted Instruction; *Microcomputers; *Sentence Structure; *Student Motivation

A study using microcomputers for instruction in sentence-building skills with two groups of American Indians in bilingual education programs found computer-assisted instruction to be effective in developing differential skills in the different age groups. The method used small group activity at the computer, emphasizing the cooperative learning environment preferred by Native American students, and encouraged the students to create their own fonts on the computer as a means of focusing attention on the task. Same-age and older-younger peer interaction was observed and recorded. It was found that the students were willing to spend the necessary time on the task, and communicated with the instructor and with peers about it. Older students were found to show more learning initiative than younger students. It is concluded that the use of computers for developing and holding interest in language skill learning holds potential for a group culturally predisposed to negative attitudes about language learning and lack of language proficiency.

ED283397

ESL Software for Use with High School and Adult Students. A MicroSIFT Quarterly Report.

Carrick, Bruce

May 1987, 15p.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: BIBLIOGRAPHY (131)

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Courseware; *English (Second Language); *Resource Materials

Forty-four computer programs specifically designed to help students learn English as a second language (ESL) are listed. The programs chosen focus on a linguistic activity, are appropriate for any proficiency level, are considered appropriate for students of high school and adult age (excluding college-level foreign students), and have been produced or updated since 1983. Programs for native speakers felt to be easily adapted to second language learners are also included, but word processing programs and programs requiring random-access tape and/or a videodisk player are excluded. Tables give information about the software producer, price, needed hardware, copyright, focus, activity type (drills, tutorials, games, and problem-solving), grade level, proficiency level, ESL-readiness, modifiability, and management options. A final section highlights 10 titles with outstanding characteristics and one product line recommended for preview.

ED278366

Applied Microcomputer Technology in Education. Teacher/Aide Training Series in Computer Programming. Inservice Manual.

Goodman, Frank M.

[1985], 150p.

EDRS Price—MF01/PC06 Plus Postage.

Document Type: Teaching Guide (052); Project Description (141); Test, Questionnaire (160)

Target Audience: Practitioners

Major Descriptors: *Authoring Aids (Programing); *Bilingual Education; *Computer Assisted Instruction; *Inservice Teacher Education; *Material Development

Originally developed to serve the needs of bilingual education and English as a second language (ESL) instructors in the Compton Unified School District in California, this replication manual provides content, organization, and lesson plans for a 14-day, 41-hour course to train teachers in the fundamentals of computer operation and structure, elementary BASIC programming and command structures, and use of a computer-assisted instruction (CAI) authoring system. The context and examples used throughout the lessons are oriented to bilingual education subject matter, but the principles and skills presented generalize to all subject areas. The manual first provides information on determining the appropriateness of the program to any replication site or target population and discusses the various issues involved. This is followed by step-by-step guidelines for implementation, which include a list of instructional materials used in the courses and an outline of workshop schedules. Plans are then provided for the 20 lessons that cover the three workshop segments: (1) system introduction; (2) authoring systems; and (3) advanced authoring techniques. Appendices contain worksheet handouts; a software evaluation guide; a description of the JOURNAL1 database system; workshop evaluation forms; reference materials; a short glossary of computer terms; two two-page bibliographies listing references on CAI in general and CAI for ESL and bilingual education; and a certificate for completion of training.

ED274980

Word Processing in the ESL Class: Integrating Reading, Writing, Listening, and Speaking Skills.

Herrmann, Andrea W.

Dec 1985, 12p. Paper presented at the Annual Meeting of the Modern Language Association (Chicago, IL, December 26-29, 1985).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Position Paper (120); Conference Paper (150); Non-classroom Material (055)

Target Audience: Practitioners; Teachers

Major Descriptors: *Classroom Environment; *Computer Assisted Instruction; *English (Second Language); *Language Arts; *Teaching Methods; *Word Processing

Creating a writing workshop atmosphere using computers in the English as a Second Language (ESL) classroom improves the opportunities for integrating all language skills: listening, speaking, reading, and writing. The computer also represents a new way of learning, emphasizing students' problem solving strategies and learning processes. Teachers must remain sensitive to the newness and complexity of the technical demands on the ESL student, which may compound fears about speaking and writing English. If initial word processing activities are brief, nonthreatening, and not heavily constrained by time, students are encouraged to explore the program's capabilities and to use the computer as part of their writing process, not as a glorified typewriter. Students learning word processing must balance a multitude of interrelated, subtly coordinated, and self-motivated mental and physical activities requiring trial and error. Teachers must balance instructional concerns with the teaching of word processing until students have achieved a minimum level of competency. By using word processing, students become highly engaged in writing and learning language, gain new sensitivity to the flexibility of language, appear more receptive to feedback concerning the need for revision and editing, and improve their overall writing and language ability.

ED278211

Using Computers to Promote the Development of English as a Second Language. A Report to the Carnegie Corporation.

Johnson, Donna M.

Nov 1985, 56p.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Research Report (143)

Target Audience: Researchers

Major Descriptors: *Classroom Techniques; *Computer Assisted Instruction; *Computer Software; *English (Second Language); *Research Needs

The status of computer-assisted language learning for elementary and secondary school limited-English-speaking students is reviewed, and recommendations for further research and development are proposed. The study was conducted through interviews with leaders in the field, sitevisits, classroom observation, attendance at workshops, and a review of the literature. The opening section provides background information and details of the study's organization. The second section discusses issues related to equal education and barriers created by limited English proficiency. The third section outlines common arguments in favor of computer assisted language learning and the major uses of computers in the field. These uses include direct instruction focusing on either form or message, and indirect language instruction through subject area study. The fourth section addresses issues in software development, evaluation and dissemination and discusses specific software

designed for use in teaching English as a second language (ESL) and for purposes other than ESL. The fifth section reviews recent research on aspects of computer-assisted language learning and presents recommendations for research and development concerning classroom computer use, teacher training, lesson design, and software evaluation criteria. A list of 86 references is appended.

ED275409
The Computer: A Tool for Writing with LEP Students.
Johnson, Mary
1986, 7p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Position Paper (120)
Major Descriptors: *Computer Uses in Education; *Elementary School Students; *English (Second Language); *Language Experience Approach; *Limited English Speaking; *Spanish Speaking

One way to help minority students with limited English proficiency (LEP) achieve a higher level of literacy is to use computers in language arts classes. Word processors now enable the production of software that involves students in text production and manipulation. This development has made it possible to introduce the computer into the classroom as a tool for writing. Spanish-speaking first- and second-grade students were instructed: (1) through the language experience approach and used computers to write their stories; (2) in the language experience approach and used pencil and paper to write their stories; or (3) in a traditional bilingual program. The scores of groups instructed through the language experience approach were higher than those of controls. Vocabulary reading and writing scores of the computer users were significantly higher than scores of those using pencil and paper. Children using computers experimented more with language, edited their stories more, and appeared to read their stories more than children using pencil and paper. Computer users' stories were generally longer than those written with pencil on paper. Generally, findings suggest that word processing has both affective and cognitive advantages for the LEP student. A two-page list of references concludes the document.

ED284434
Survey of Latin Instructional Software for the Microcomputer.
Latousek, Robert B., Jr.
1985, 26p.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Research Report (143); Review Literature (070); Directory (132)
Major Descriptors: *Computer Assisted Instruction; *Computer Software Reviews; *Courseware; *Latin

A critical review of computer software for computer-assisted instruction (CAI) in Latin presents information regarding user-friendliness, instructiveness, special effects, costs, and availability. Survey responses of first- and second-year Latin students (N=65) at a high school provided data for the comparison of programs. Programs reviewed included: "Latin Skills," "Vocabulary on the Attack, On Target," "Quo Modo Dicis? Latin Idiom Master, Latin Computerized Grammar I," "S.C.I.O.," "Latin FlashDrill," "Introduction to Latin Vocabulary I/II," "Latin. Vrb.," "LatinExercises," "Latin Hangman," "DISCO," "Latin Tutor," "Computatus," and "Latin Verb Forms, Certamen Practice." A catalog listing the hardware-software compatibility, cost, and availability of the programs is included.

ED281358
Video/Computer, the Students' Partner for Listening Skills.
Manning, Jeanne L.
Mar 1986, 18p. Paper presented at the Annual Spring Conference of the Colorado Congress of Foreign Language Teachers (Colorado Springs, CO, March 6-8, 1986).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Project Description (141); Conference Paper (150)
Major Descriptors: *Aural Learning; *Computer Assisted Instruction; *Listening Skills; *Nonverbal Communication; *Videotape Recordings; *Visual Stimuli

Notes for a conference presentation outline and illustrate an experimental technique to develop foreign language listening skills using video and computer. Materials are drawn from a pilot project entitled "Allo Allo," designed to teach students how to listen in French. The approach expands the definition of listening to include both aural and visual, or nonverbal, stimuli and combines computer exercises with video scenes. Through the video, students are exposed to authentic, concrete examples of speech ranging from grammar rules to real dialogue and including hesitations, repetitions, standard and regional accents, and a full range of nonverbal cues. The interactive computer exercises test and stimulate listening, observing and remembering, and reacting and giving meaning to what the students hear and see. The approach is being piloted at the

secondary and postsecondary levels for different types of listening and levels of comprehension. Preliminary pilot results suggest that the technique is successful in integrating aural and visual aspects of comprehension and also develops student confidence in listening skills. The content and exercises can be varied for different instructional purposes.

ED282944

South Bronx High School Computers in Bilingual Education 1985-1986. OEA Evaluation Report.

New York City Board of Education, Brooklyn. Office of Educational Assessment.

Mar 1987, 75p. Prepared by the OEA Bilingual Education Evaluation Unit. For the 1984-85 report, see ED 270 560.

Available from: Office of Educational Assessment, New York City Board of Education, 110 Livingston Street, Brooklyn, NY 11201.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Educationally Disadvantaged; *Hispanic Americans; *Limited English Speaking

The Computers in Bilingual Education (CIBE) program offers instruction in computer literacy and in academic subjects for limited English proficient (LEP) students at the South Bronx High School in New York City. A variety of public funding sources were used to provide materials, personnel and staff development for the program. During the first two years of CIBE, 302 low income Spanish-speaking students in grades 9 through 11 were served. The staff participated in activities to encourage parental involvement. Staff members plan to translate mainstream curriculum materials into Spanish if reallocation of monies is approved. The program successfully encouraged student attendance and promoted teamwork among school, project, and bilingual staff. Statistical data are presented to show the full and partial achievement of the academic objectives. Recommendations for improvement of CIBE are: (1) weekend events and a bilingual newsletter for parents; (2) reorganization of staff to prevent burnout; (3) purchase of new office equipment; and (4) compilation of a list of program developed materials.

ED279211

Computer Focused Russian Bilingual Instruction Program, 1985-1986. OEA Evaluation Report.

New York City Board of Education, Brooklyn. Office of Educational Assessment.

[1987], 45p.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Bilingual Education Programs; *Computer Assisted Instruction; *English (Second Language); *Native Language Instruction; *Program Effectiveness; *Russian;

A New York City program to develop English-language skills, academic skills, native language skills, computer literacy, and career awareness among 250 limited-English-proficient native speakers of Russian in 6 high schools is evaluated in this report. The program was run in both public and private high schools. Quantitative analysis of student achievement data indicates that program objectives were met in English language skills and computer literacy, and content-area achievement was high in comparison to citywide averages, but native language achievement did not meet the program objective. Recommendations for program improvement are to provide students with more computer experience, make computer programs more suitable to the Russian bilingual students' needs, and review and revise program objectives based on students' actual ability to perform. The appendices include statistical analyses of student test scores.

ED279775

Seward Park High School Project CABES, 1985-1986. OEA Evaluation Report.

New York City Board of Education, Brooklyn. Office of Educational Assessment.

[1986], 61p. Some parts of appendices may not reproduce well due to marginal legibility. For the 1983-84 and 1984-85 reports, see ED 269 543 and ED 270 551.

Available from: Office of Educational Assessment, New York City Board of Education, 110 Livingston Street, Brooklyn, NY 11201.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Bilingual Education Programs; *Hispanic Americans; *Limited English Speaking; *Program Effectiveness; Spanish Speaking

In 1985-86, the Career Advancement through Bilingual Education Skills (CABES) project was in the final year of a three-year funding cycle at Seward Park High School in Manhattan, New York. The project's major goal was to provide career advancement skills to a population group of 279 students of limited English

proficiency (LEP). Included in the career-oriented curriculum for CABES' participants are courses in typing, employability skills, and word processing. There are also bilingual career workshops, as well as content courses in the native language and English as a second language (ESL). Although the project underwent extensive personnel changes in the previous year, in 1985-86 the new staff was able to successfully manage the project, integrate activities with the rest of the school, and bring a measure of prestige to CABES within the school community. Student support services, cultural and extracurricular activities, and staff development and parental involvement activities were provided. The performance of program students on achievement tests indicates that instructional objectives were met in ESL, science, and the career advancement sequence. The objective was not achieved in mathematics due to poor academic performance in the fall term. In future, the school administration should allocate more space to the project, and typing and word-processing skills should be taught bilingually. Appendices include two sample lessons and some sample student writings.

ED271541
John Jay High School Project TRIUNFE 1984-1985. OEA Evaluation Report.
New York City Board of Education, Brooklyn. Office of Educational Assessment.
1986, 31p. For the 1983-84 report, see ED 262 142.
Available from: Office of Educational Assessment, New York City Board of Education, 110 Livingston St., Brooklyn, NY 11201.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Evaluative Report (142)
Major Descriptors: *Academic Achievement; *Bilingual Education Programs; *Computer Assisted Instruction; *Mainstreaming; *Native Language Instruction
Project TRIUNFE provides instruction in English as a second language, native language development, and bilingual instruction in mathematics, science and social studies to limited English proficient Hispanic, Asian, and Haitian students. The program is a transitional program whose major goal is to mainstream students in less than two years. Mainstreamed students maintain contact with project staff through tutoring and career advising. Evaluation findings for the second year of a three-year funding cycle are presented by program objectives. They include the results of student performance in courses and tests, reviews of program materials and records, interviews with relevant personnel, and classroom observations. Overall, program objectives were met for English as a second language, content-area instruction in mathematics, science, and social studies and native language arts instruction, and student attendance. The project did not provide data to assess the objective for student achievement in computer lab classes.

ED279778
Project COM-TECH (Bilingual Computer- and Technology-Oriented Program), 1985-86. OEA Evaluation Report.
New York City Board of Education, Brooklyn. Office of Educational Assessment.
[1986], 38p.
Available from: Office of Educational Assessment, New York City Board of Education, 110 Livingston Street, Brooklyn, NY, 11201.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Evaluative Report (142)
Major Descriptors: *Bilingual Education Programs; *Computer Assisted Instruction; *Limited English Speaking; *Program Effectiveness
In 1985-86, Project COM-TECH offered bilingual individualized instruction to 300 limited-English proficiency students at two New York City high schools (Bushwick in Brooklyn, and Brandeis in Manhattan). Using an enrichment approach, the project provided supplementary instruction in English as a second language (ESL), native language arts, and native language instruction in mathematics, science, and social studies. In the first year of a three-year funding cycle, the project was not able to realize all of its original goals. Installation delays prohibited the opening of a bilingual computer-education enrichment center at Brandeis, and funding delays stalled the work of a resource specialist at Bushwick. Project goals were not met in the areas of staff development and parental involvement, but student achievement objectives were met in ESL, native language arts, content areas, and student attendance. Day-to-day operation of the program might be improved by: developing closer contact between Brandeis and the central office and between the staffs of the two participating sites, improving the physical space of the computer centers at each school, and collecting all the data necessary to assess all program objectives.

ED281923
Project BITEC, 1985-1986. OEA Evaluation Report.
New York City Board of Education, Brooklyn. Office of Educational Assessment.

[1986], 40p. Prepared by the OEA Bilingual Education Evaluation Unit. For 1983-84 report, see ED 269 524.

Available from: Office of Educational Assessment, New York City Board of Education, 110 Livingston St., Brooklyn, NY 11201.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Computer Literacy; *English (Second Language); *High School Students; *Industrial Arts; *Urban Education; *Vocational Education

In 1985-86, Project BITEC provided bilingual instruction and supportive services to 379 limited English proficient (LEP) students from Italian, Chinese, Vietnamese, and Latin American backgrounds at New Utrecht High School (Brooklyn, New York). The project aimed at enabling its target population to master the English language as soon as possible, continue their education in content areas through bilingual courses, and gain vocational skills. BITEC offered courses in English as a second language (ESL); bilingual instruction in mathematics, science, and social studies; and courses in industrial arts, secretarial studies, and computer technical studies. This evaluation found that: (1) significant gains were made in English reading achievement; (2) students achieved a 70 percent passing rate in native language arts courses; (3) overall, the percentage of program students passing teacher-made examinations in mathematics, science, social studies, and secretarial courses in the spring semester was equal to or greater than that of mainstream students; (4) program students surpassed a 70 percent passing rate in computer programming, typing/steno/word processing, and electronics, architectural drafting, and advanced building trades; (5) program students had a higher attendance rate than mainstream students; and (6) the dropout rate of program students was not significantly lower than that of mainstream students.

ED281956

Project CARIBE, 1985-1986. OEA Evaluation Report.

New York City Board of Education, Brooklyn. Office of Educational Assessment.

Mar 1987, 44p. Some parts of appendices contain small broken type.

Available from: Office of Educational Assessment, New York City Board of Education, 110 Livingston St., Brooklyn, NY 11201.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Bilingual Education Programs; *Career Awareness; *Computer Assisted Instruction; *Program Effectiveness; *Program Implementation; *Spanish Speaking

In 1985-86, the second year of funding, Project CARIBE proposed to increase career awareness among Spanish-speaking students of limited English proficiency (LEP) through a computer-literacy program. The project operated at two schools in Brooklyn, New York, Eastern District High School and Clara Barton High School, but after the number of Spanish-speaking students at Clara Barton were found to have declined, the project's second site was switched mid-year to Far Rockaway High School. The project provided instruction in English as a second language (ESL), native language arts, and content-area subjects taught in Spanish; these classes were supplemented by enrichment experiences related to careers. For these experiences, the project planned to provide a resource/computer center in each of the participating schools, additional guidance and career-planning services for students, and ESL/Americanization classes for students' parents. All of these proposals were not fulfilled at both sites, and student achievement goals were not fully met. Recommendations for improving the project include: (1) develop the career awareness program with appropriate software; (2) develop instruments to measure pupil and staff awareness and/orattitudes, or modify the objectives; and (3) make every effort to implement the program fully at Far Rockaway in September. Questionnaires for staff and students to evaluate the program's effectiveness are appended.

ED273115

Computer Literacy: Handbook to Accompany VESL Vocabulary Cards.

Siefer, Nancy; Lenhart, Debra

Jun 1984, 103p. VESL vocabulary cards are printed on colored paper. For the other manuals in this handbook, see ED 273 116-118.

EDRS Price—MF01/PC05 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Literacy; *Limited English Speaking; *Visual Aids; *Vocabulary Development; *Vocational Education; *Vocational English (Second Language)

This manual is one of four self-contained components of a larger handbook designed to assist secondary and postsecondary instructors and support staff in meeting the needs of limited-English-proficiency (LEP)

students in vocational training programs. Together with an accompanying set of vocational English as a second language (VESL) vocabulary cards, the guide not only provides essential technical vocabulary in computer literacy needed by the LEP vocational student to participate more confidently and successfully in training and on the job, but also suggests practical activities for using the vocabulary in a variety of settings. Chapters address the following topics: the elements of memory, meaning, and motivation in vocabulary development; using the vocabulary cards; the parts and functions of a computer; computer abbreviations; floppy disks; vocabulary exercises; programming languages; flowcharts; and employability skills. Additional exercises, a computer literacy vocabulary list, a resource list of additional teaching strategies for vocabulary development, and anannotated bibliography are appended. The VESL cards are printed on separate sheets at the back of the manual together with two pages of illustrations to go with the cards.

ED281374

Global Lessons for Second Language Students, Grades 9-12. Student Edition and Teacher's Edition.

Sirdenis, Wisam Kazaleh, Ed.; Giannetti, George, Ed.

Oak Park School District, MI.

1985, 266p.

EDRS Price—MF01/PC11 Plus Postage.

Document Type: Instructional Material (051); Teaching Guide (052)

Major Descriptors: *Bilingual Education; *Career Awareness; *Computer Literacy; *Global Approach; *Multicultural Education

An Oak Park, Michigan student workbook prepared as part of the Oak Park Title VII Project for limited English proficient students or students whose first or second language is other than English, contains fifteen multicultural lessons presented in four units. The first unit focuses on the nature of human global interdependence and takes a geographic look at the world through languages and their distribution. It stresses the need for mutual understanding and cooperation for survival and for the humane use of world resources. The second unit, entitled "Why Study a Second Language?" looks at ethnocentrism and its many manifestations as an obstacle to understanding other peoples and their ways. It underscores the usefulness of second language skills for making new cultural experiences, travel, and a broader range of occupations more available. This unit examines four of the major languages of the world (English, Arabic, French, and Spanish) and two cultures in Oak Park (Hebrew and Chaldean). Unit 3 focuses more closely on four world issues: population, stereotyping, energy, and futurism. The fourth unit outlines career opportunities in which language study can lead to interesting and rewarding work, including careers in the international language world, and careers related to the work of the United Nations. Twelve of the 15 chapters contain vocabulary lists highlighting words that students will use in crossword puzzles provided in the lessons as well as a chapter review exercise section featuring a self-test. The teacher's edition of the guide contains exercises, descriptions of suggested activites for some chapters, blank maps for use as duplication masters, and answer keys to the chapter review self-tests.

ED275138

The Promise and Threat of Microcomputers for Language Learners.

Smith, Frank

Mar 1983, 19p.; In: Handscombe, Jean, Ed.; And Others. *On TESOL '83. The Question of Control. Selected Papers from the Annual Convention of Teachers of English to Speakers of Other Languages (17th, Toronto, Canada, March 15-20,1983)*; see ED 275 137.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Evaluative Report (142); Position Paper (120); Conference Paper (150)

Major Descriptors: *Computer Uses in Education; *English (Second Language); *Microcomputers; *Word Processing

Miniaturized computer technology can raise both language and education beyond the current capacity to understand. Children's learning is more complex, powerful, and subtle than it is usually given credit for, and language is more elaborate and intricate than is generally realized. Computers must be used carefully, but they offer many possibilities, largely unexplored. They do not necessarily isolate individuals in their learning tasks, but can dissolve the walls of the classroom, collapse space and time, and bring people together in dramatic new ways. Computer capabilities, particularly word processing, provide such options as joint authorship, networking, and long-distance communication and collaboration through cross-cultural letter writing. Teachers must learn to use computers, and take advantage of the creative and interactive potential of computer technology. But they must also decide and assert the way computers will be used in education.

ED284444

Modern Media in Foreign Language Education: Theory and Implementation. The ACTFL Foreign Language Education Series.

Smith, William Flint, Ed.

1987, 299p. For individual papers, see ED 284 445-454.

Available from: National Textbook Company, 4255 West Touhy Avenue, Lincolnwood, IL 60646-1975 (Item No. 93865, $14.60).

EDRS Price—MF01 Plus Postage. PC not available from EDRS.

Document Type: Book (010); Collection (020); Review Literature (070)

Target Audience: Practitioners; Researchers; Teachers; Administrators

Major Descriptors: *Computer Assisted Instruction; *Computer Uses in Education; *Educational Technology; *Media Selection; *Second Language Instruction; *Teaching Methods

Intended for language teachers at all levels, administrators, and researchers, this book presents essays on the use of educational technology in language teaching, focusing on the use of computer-assisted language learning (CALL). The writings suggest the principles that should guide CALL in curriculum, methodology, and research efforts; in the design and evaluation of software; and in teacher training. The text includes these chapters: "Problems and Prospects in Foreign Language Computing" (James P. Pusack); "Integrating Video and CALL in the Curriculum: The Role of the ACTFL Guidelines" (Robert Ariew); "Towards a Media-Specific Methodology for CALL" (David M. Weible); "Applying Pedagogical Principles to CALL Courseware Development" (David H. Wyatt); "Research on CALL" (Kathleen Marshall Pederson); "Relating Second-Language Acquisition Theory to CALL Research and Application" (Catherine Doughty); "A Psycholinguistic Perspective on Grammar and CALL" (Nina Garrett); "Artificial Intelligence and CALL" (John H. Underwood); "Language Teaching Approaches, the Evaluation of CALL Software, and Design Implications" (Philip L. Hubbard); "Teacher Training for CALL and Its Implications" (Constance O. Curtin, Stanley L. Shinall). The appendix lists criteria for the evaluation of CALL software.

ED279153

Teaching through Interactive Pictures: Computer, Video and Human Realities.

Strauss, Andre

Apr 1986, 10p. Paper presented at a Meeting of the International Association of Teachers of English as a Foreign Language (20th, Brighton, England, April 1-4, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Evaluative Report (142); Teaching Guide (052); Conference Paper (150)

Target Audience: Teachers; Practitioners

Major Descriptors: *Classroom Techniques; *Computer Assisted Instruction; *English (Second Language); *English for Special Purposes; *Videotape Cassettes; *Visual Aids

A technique designed to make the classroom use of videotapes for second language teaching for specific purposes more efficient is described. The technique begins with a classroom review of basic vocabulary and structures, which is then tested with a computer exercise. A second stage requires discussion and memorization of vocabulary and phrases within acertain subject-area field such as business, and includes examination of pictures. Aspects of the pictures are discussed, including the setting, individuals, clothing, furniture, attitudes, and actions. This second stage of language learning is also verified with computer exercises. The picture-decoding exercise provides the students with skills to decode videotapes in the third stage, focusing on language and content without being distracted by details of the pictures themselves. Finally, the students write reports with the help of the computer's word processing program, and have individual interviews with the teacher. The method integrates language, visual presentation, personal experience, and use of the computer.

ED281379

The Implications of Technology for Foreign Language Teaching.

Tuman, Walter V.

Nov 1985, 23p. Revised version of a paper presented at the Joint Meeting of the American Council on the Teaching of Foreign Languages (New York, NY, November 28-30, 1985).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Evaluative Report (142); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Computer Uses in Education; *Educational Technology; *Electronic Classrooms; *Information Processing

The potential for the use of technology in second language instruction lies in two general areas: information management (locating, organizing, applying, storing, updating, and evaluating data) and instructional design and implementation. It would be a great disservice to language instruction not to explore these areas, and the language teaching profession should be closely involved in this exploration. True collaboration between

educators and computer programmers has not yet been achieved. The range of possible computer applications for foreign language professionals is broad, is not restricted to the classroom, and is becoming increasingly available to the average non technologically oriented user. These applications include artificial intelligence, audio and video technology, database management, linguistic analysis courseware and lesson design, learning theory, broadcasting, artificial and synthesized speech, telecommunications and networking, and testing and evaluation. A futuristic but not unrealistic scenario of a multimedia learning space in the language classroom might combine many of these applications in a designated area intended for daily student use.

Language Arts

ED279018
Writing to Read Program. Final Evaluation Report. E.C.I.A.Chapter 2, 1985-1986.
District of Columbia Public Schools.
Aug 1986, 117p.
EDRS Price—MF01/PC05 Plus Postage.
Document Type: Research Report (143); Test, Questionnaire (160)
Major Descriptors: *Computer Assisted Instruction; *Program Effectiveness; *Program Evaluation; *Program Implementation; *Reading Writing Relationship; *Writing Improvement

During the 1985-1986 school year, the District of Columbia Public Schools (DCPS) implemented the Writing to Read program, which is designed to improve the writing, language and vocabulary development, and reading of young children. The Planning, Monitoring, and Implementing (PMI) Evaluation Model for Decision Making was used to evaluate two things: (1) whether the majority of teachers implemented the program as designed; and (2) whether the students in the program increased their writing achievement at a greater than average rate. The project involved 2,813 children in kindergarten and first grade. Teachers were interviewed about their use of the program, and student progress was assessed via the Metropolitan Achievement Test and the DCPS Writing Sample Scale. Results indicated that: (1) the majority of teachers implemented the program as designed; (2) the processes necessary for a successful program were present; (3) teacher experience in the program did not greatly affect performance outcomes; (4) students' scores showed a statistically significant increase over the scores of comparison groups on the reading and language subtests of the Metropolitan Achievement Test; (5) although first grade students' scores were significantly higher than those of the comparison group, they were not as high as might be expected given the kindergartners' achievement level; (6) the mean scores of students in the program were at higher levels than those of the comparison groups. (Appendixes comprise the bulk of the document and include workshop agendas, teacher questionnaires and results, descriptions of writing stages on which the DCPS writing scale is based, and statistical data analyzing test results.)

ED281390
Computer Interpretation of Meaning.
Hellwig, Harold
Oct 1986, 25p. Paper presented at a conference on Computers in Language Research and Language Learning (Urbana, IL, October 25-26, 1986).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Evaluative Report (142); Conference Paper (150)
Major Descriptors: *Case (Grammar); *Computational Linguistics; *Computer Software; *Discourse Analysis; *Narration; *Semantics

A computer program devised to analyze text by the use of case grammar is described. The program tests a text against the expectations created by a narrative situation and by the connotative values in thenarrator's choice of words. It determines spatial concepts attached to various English words and analyzes the spatial relationships in syntactic structures. The assumptions and mechanisms of the approach are outlined, and the results of the program's application to Mark Twain's "Letters from Hawaii" and "Connecticut Yankee in King Arthur's Court" are discussed.

ED276050
Developing Keyboarding Skills to Support the Elementary Language Arts Program. For Review and Comment.
New York State Education Dept., Albany. Bureau of Curriculum Development.
Jun 1986, 43p.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Non-classroom Material (055)

Major Descriptors: *Computer Oriented Programs; *Computer Uses in Education; *Educational Improvement; *Keyboarding (Data Entry); *Language Arts; *Teaching Methods

In response to the New York State Board of Regents Action Plan relating to computer keyboarding skills, this guide is designed to help elementary school staff understand aspects of keyboarding and develop this important basic skill in their students. The three-part presentation begins with a discussion of the benefits of using computers in English language arts, differences between keyboarding and typewriting, outcomes of keyboard instruction, and general guidelines for achieving those outcomes. The second section addresses issues pertinent to planning for keyboarding instruction, including planning considerations, research on students and keyboarding, planning for teacher awareness and training, instruction, reviewing, instructional equipment and materials, and evaluation. The final section, focusing on implementing keyboarding instruction, discusses (1) choosing an approach, (2) suggested instructional sequence for one lesson, (3) ideas for preparing lessons, (4) suggestions for enhancing instruction, (5) initial keyboarding, (6) procedures for initial introduction to keyboarding, (7) presenting the numeric keyboard, (8) suggested skill development activities, (9) some language arts development strategies, and (10) activities for releasing tension. Five appendixes provide a glossary, suggested readings, a conventional keyboard chart, a discussion of issues regarding handicapped students, and a sampling of software.

ED270822

Microcomputers and the Language Arts. English, Language, and Education Series.

Robinson, Brent

1985, 135p.

Available from: Open University Press, Taylor & Francis Inc., 242 Cherry St., Philadelphia, PA 19106-1906 ($15.00).

Document not available from EDRS.

Document Type: Teaching Guide (052); Position Paper (120); Book (010)

Major Descriptors: *Computer Assisted Instruction; *Language Arts; *Microcomputers; *Reading Instruction; *Speech Instruction; *Writing Instruction

Designed to reveal some of the strengths and weaknesses of microtechnology in the language arts, this book suggests how and where microcomputers might have applications or implications in the language arts curriculum. The first chapter of the book discusses practical problems facing language arts teachers in developing classroom computer programs, including how to gain access to computers, how to choose hardware and software, and where to place them for best use. The second chapter discusses computers and reading instruction, examining such areas as beginning reading, phonics, comprehension, and the higher reading skills. The third chapter deals with computers and writing and reviews computer use in teaching letter formation, spelling, grammar, and punctuation, and also as a stimulus forwriting. The fourth chapter covers computers and oracy, touching upon computer recognition of speech, speech synthesis, and computer-student exchanges. The book concludes with a discussion of computers as language users across the curriculum.

Logo Programming Language

ED284678

Transfer of LOGO Debugging Skill: Analysis, Instruction, and Assessment.

Carver, Sharon McCoy

22 Dec 1986, 135p. Ph.D. Dissertation, Carnegie-Mellon University.

EDRS Price—MF01/PC06 Plus Postage.

Document Type: Dissertation (041); Research Report (143)

Major Descriptors: *Computer Assisted Instruction; *Elementary School Students; *Task Analysis; *Transfer of Training

This dissertation seeks to determine the extent to which learning debugging in the context of LOGO programming improves children's debugging in other programming and nonprogramming contexts. The approach involves detailed task analysis of debugging (in the form of a computer simulation model), development of model-based instructional guidelines for teaching children debugging skills they do not learn "by discovery," and assessment of the debugging skills children are able to transfer to other programming and nonprogramming tasks. Twenty-two 8- to 11-year-old students took two 25-hour LOGO courses. Half of the students were taught debugging in the context of a LOGO graphics course first and then a LOGO list-processing course. The other half were taught debugging in the same two mini-courses, but in the reverse order. The performance of children taking tests in the first mini-course was compared with the performance of children taking the same tests in the second mini-course. Assessments of students' debugging skills revealed that the debugging strategies

learned from explicit instruction in the first computer programming mini-course had a positive impact on children's debugging in both new programming and nonprogramming situations.

ED270743

The Influence of LOGO Revision Strategies on the Written Revision Practices of Young Children: A Stepping Stone.

Kline, Christine Holm

[1983], 31p.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Research Report (143)

*Student Behavior; *Writing Instruction; *Writing Research

A study analyzed the revision practices of 25 children in a third grade classroom, half of whom received LOGO instruction, to determine if the revision practices inherent in LOGO programing sponsor revision practices in the composing of autonomous texts of young children. It was hypothesized that the revision strategies in LOGO, both engendered and supported by the building of graphic models, would be a stepping stone between highly contextual revisions (drawing) and the more abstract revision required in writing words alone. The design of the study was three-tiered: a field experiment, a field study, and case studies. Revisions were analyzed according to observed changes in composing, features of the written products themselves, and the writers' thoughts about revision. The findings revealed an influence of LOGO revision practices in the paper-and-pencil composing behaviors of the students. The LOGO group increased its percentage of textual revisions by 20%, while the control group increased its percentage by only 8%. In addition, the frequency of rereading behaviors in the LOGO group increased more than 300%, while there was a 48% decline in the frequency of this behavior for the control group. Graphs and tables of data and a two-page list of references are included in the report.

ED278379

Where Does Logo Fit In?

Robinson, Louise; And Others

[1984], 9p. Paper presented at a meeting of the National Association of Laboratory Schools (Chicago, IL).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Position Paper (120); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Discovery Learning; *Geometric Constructions; *Problem Solving

A computer language that can be used by people of all ages, Logo allows children the freedom to direct their own learning. Integrating Logo into the curriculum provides students the opportunity to program a computer, to engage in logical, sequential thinking and planning, to solve problems, and to manipulate text, language, graphics, and music while engaging in creative project development. One of the most powerful outcomes is that students are able to analyze and develop their thinking and problem-solving skills as well develop specific debugging strategies. After hours of open-ended exploration, children will set specific goals and work very hard to achieve them, and the scenario is repeated at every grade level. Unfortunately, Logo can be abused. The imposition of a prescribed Logo curriculum for each grade imposes an order totally contrary to Papert's vision of heuristic learning and discovery, and slotting Logo into grades K-6 misses out on the fact that Logo is an exciting medium for exploring informal geometry in the middle school and deductive geometry in high school. Logo can also be used in undergraduate and graduate courses in education, for it has the potential to respond to the demand for problem-solving in the curriculum and for developing problem-solving skills throughout a child's school experience.

Mathematics

ED273484

Equity Issues in the Use of Technology in Teaching Mathematics.

Becker, Joanne Rossi

1986, 8p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Oriented Programs; *Course Descriptions; *Equal Education; *Inservice Teacher Education; *Mathematics Instruction; *Minority Groups

This paper describes the equity component of an ongoing mathematics and technology inservice program which aims to create awareness of equity issues and develop strategies essential to achieving equity. Equity interventions are briefly reviewed. Research evidence suggests that social and experiential factors help determine participation in mathematics, which is linked to achievement. Affective factors seem to be major contributors to gender difference in both achievement and enrollment in mathematics. Modifiable variables are noted, and successful programs named. A theoretical model for equity training is presented, with the equity component discussed in detail.

ED273481
Development of a CAI-Program within the Field of Early Mathematics.
Bernard, Y. F.
Apr 1986, 16p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Research Report (143); Conference Paper (150)
Target Audience: Researchers
Major Descriptors: *Computation; *Computer Assisted Instruction; *Elementary School Mathematics; *Error Patterns; *Mathematics Instruction; *Problem Solving
This research is aimed at diagnosing the problem-solving skill of elementary school children and subsequently improving their competence in early mathematics. To reach this goal, a computer assisted instruction (CAI) program on open sentences, incorporating knowledge about students' problem solving strategies and misconceptions, was constructed. Two studies are reported, the first to gain more insight into the process of problem solving and the second to evaluate the functioning of the CAI program in the classroom. In the first study, 339 pupils in grades 2 and 3 were given a test, followed by interviews with 16 high performers and 16 low performers. Their answer patterns are discussed, and models of knowledge, the diagnostic program, and the remedial program are described. In the second study, the CAI program was evaluated with second-grade pupils in five schools. It was concluded that children can learn fundamental concepts relatively quickly with a computer program; one-third profited significantly.

ED281739
Computer Assisted Vocational Math. Written for TRS-80, Model I, Level II, 16K.
Daly, Judith; And Others
[1987], 432p.
EDRS Price—MF01/PC18 Plus Postage.
Document Type: Instructional Material (051); Teaching Guide (052); Computer Programs (101)
Target Audience: Teachers; Students; Practitioners
Major Descriptors: *Computer Software; *Curriculum Development; *Mathematics Instruction; *Vocational Education; *Worksheets
This computer-assisted curriculum is intended to be used to enhance a vocational mathematics/applied mathematics course. A total of 32 packets were produced to increase the basic mathematics skills of students in the following vocational programs: automotive trades, beauty culture, building trades, climate control, electrical trades, medical/dental technology, and recreational vehicles. Designed to be used one day each week, the curriculum requires each student to be at a computer. Students complete a diagnostic skills inventory, and then are assigned to the appropriate unit. Topics include: computation with decimals, rounding numbers, fractions, percents, metric measurement, perimeter, area, volume, equations, formulas, ratio and proportion, graphing, and computer programming. Each unit contains the program printout for tutorials as well as other lesson materials, such as problems to be worked. The appendix presents the Trouble Shooting Manual to assist educators in implementing the curriculum. Both computer programming and instructional notes are included.

ED277597
Computer Programming in the Secondary Mathematics Curriculum.
Funk, James E.
1987, 31p. Requirements for course S591—Exit Project, Indiana University.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Review Literature (070); Bibliography (131)
Target Audience: Practitioners
Major Descriptors: *Computer Assisted Instruction; *Mathematics Instruction; *Programing; *Research Utilization; *Secondary School Mathematics
This paper reports on research related to computer programing in the secondary school mathematics curriculum. The first section gives the background and nature of the problem, explains the organization and limitations of the study, and defines the terms used. The second section presents an annotated bibliography, organized into four parts. The first part includes: (1) studies on computer literacy; (2) uses of computers in

education; (3) content to be taught in the secondary mathematics curriculum; and (4) characteristics of student programmers. The second part concerns the effect of the computer on student attitudes. The effect of the computer on student mathematical achievement is the focus of the third part, and the final part involves gender differences and the computer. In the third section of the paper, a summary of the annotated reports is given, followed by conclusions and four recommendations. A 26-item bibliography of works cited concludes the paper.

ED271287

Attributional and Performance Effects of Competitive and Individualistic Feedback in Computer Assisted Mathematics Instruction.

Lewis, Mark A.; Cooney, John B.

Apr 1986, 34p. Paper presented at the Annual Meeting of the American Educational Research Association (70th, San Francisco, CA, April 16-20, 1986).

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Research Report (143); Conference Paper (150)

Target Audience: Practitioners

Major Descriptors: *Attribution Theory; *Competition; *Computer Assisted Instruction; *Feedback; *Individualized Instruction; *Performance

Fifty-two fourth and fifth grade students, randomly assigned to three groups (1) competitive, (2) individualistic, and (3) no feedback control, received differential feedback regarding their performance in two 40-minute computer assisted mathematics sessions per week over six weeks. Attributions regarding academic outcomes in computer assisted mathematics were assessed prior to and following treatment, as was academic locus of control. Measures of rate of progress and achievement were also taken. Children receiving competitive feedback showed an increase in attributions to ability for success, as predicted. A predicted increase in attributions to effort for children receiving individualistic feedback was not found. Contrary to previous findings, gender differences in academic locus of control were not found, although all subjects showed an increase in internal responsibility for academic outcomes over the treatment period. Predicted increases in rate of progress and mathematics achievement by the individualistic feedback group in comparison with the competitive feedback and control groups were not found. Feedback conditions were found to differentially affect males and females with males exhibiting a significantly higher rate of progress than females within the competitive feedback group. Attributions were found to account for a moderate, significant portion of the variance in rate of progress and mathematics achievement.

ED281716

Schema Knowledge Structures for Representing and Understanding Arithmetic Story Problems. First Year Technical Report.

Marshall, Sandra P.; And Others

Mar 1987, 72p.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Research Report (143)

Target Audience: Researchers

Major Descriptors: *Cognitive Processes; *Computer Simulation; *Elementary School Mathematics; *Long Term Memory; *Mathematics Instruction; *Problem Solving

This report describes the first of three stages in a study in the domain of problem solving: the definition and explication of schema knowledge. One objective of this research is to understand how schema knowledge is acquired and used in the chosen domain. The focus is on ways in which instruction influences the development of specific knowledge structures in long-term memory. The problem-solving domain was first analyzed with respect to the conceptual relations that may appear in arithmetic story problems. Emphasis is placed on the underlying semantic structure that gives meaning to each problem. Next, each semantic structure was framed as a hypothetical memory object, or schema, and the relationship to accepted theories of memory was explored. Finally, a computer model was developed that details the linkage of schema knowledge to two basic components of long-term memory: semantic networks of declarative memory and production systems and procedural memory.

ED275497

SPINOFFS: Mathematics and Science Computer Learning Experiences.

Nye, Barbara A.; West, Barbara A.

Jul 1986, 129p.

Available from: Center for Training and Technical Assistance, Tennessee State University, 10th and Charlotte Ave., Nashville, TN 37203 ($20.00, $15.00 if ordering 5 or more).

EDRS Price—MF01 Plus Postage. PC not available from EDRS.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Software; *Elementary School Mathematics; *Elementary School Science; *Learning Activities; *Mathematics Instruction; *Science Instruction

The premise behind this document is that a generation gap is opening between 8-year-olds and 16-year-olds in terms of technological respect, ease of hardware usage, and understanding of process tools. Therefore, this publication seeks to develop awareness and skills with data bases, computer graphics, programming, spreadsheets, simulations, problem solving, computer-assisted instruction, and other computer uses in mathematics and science in the early elementary grades. Teachers from five school systems in Tennessee explored appropriate hardware and software to develop technology-based learning as an integrated part of the elementary school classroom environment. Science and mathematics software was field-tested in 31 classrooms in kindergarten and grades 1-3. More than 100 pieces of software were reviewed, using 12 criteria. The reviews include title, publisher, price, summary of curriculum recommendations, intended use, how to load and command functions, curriculum possibilities, and learning center activities. Information on related teacher inservice activities and learning centers is included. Sections then concern science software reviews with and without curriculum activities and mathematics software reviews with and without curriculum activities. A listing of software paralleling the goals and strands of Tennessee's "Basic Skills First Curriculum Guides" is included.

ED281760

Toward the 21st Century in Mathematics Education.

O'Brien, Thomas C., Ed.

26 Mar 1982, 126p.

Available from: Editor, Teachers' Center Project, Southern Illinois University at Edwardsville, Room 1120, Building II, Edwardsville, IL 62026-1122.

EDRS Price—MF01 Plus Postage. PC not available from EDRS.

Document Type: Collection (020)

Target Audience: Practitioners

Major Descriptors: *Computer Uses in Education; *Elementary School Mathematics; *Mathematics Achievement; *Mathematics Instruction; *Mathematics Tests

In an effort to prepare students for the 21st century, this book provides ideas and suggestions for educators on critical areas in mathematics education. A series of articles is presented on content changes, instructional strategies, and the role of computers. These articles include: (1) "Status of Computers" (John Ellsworth); (2) "New Topics for the Elementary School Math Curriculum" (Tamas Varga); (3) "Mathematics for the Twenty-First Century" (A. I. Weinzweig); (4) "The Teacher and Curricular Change" (Fred D. Carver); (5) "An Innovation in Assessment: The MANS Test" (Martin Herbert); (6) "On Assessment" (James L. MacLean); (7) "Five Anchors" (T. C. O'Brien); and (8) "Computers and the Future" (Robert S. Hoeke). Lists of suggested readings are provided for parents and teachers and for background and research. Catalogs and periodicals are also identified.

ED274321

A Model for Assessing and Meeting Needs in Instructional Computing: Procedures and Results of a Multi-State Needs Assessment.

Roblyer, M. D., Ed.

1986, 83p. Appendix B may not reproduce well due to small, light type.

EDRS Price—MF01/PC04 Plus Postage.

Document Type: Position Paper (120); Research Report (143)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Curriculum Development; *Mathematics Instruction; *Microcomputers; *Needs Assessment

The Appalachia Educational Laboratory (AEL) conducted an assessment of microcomputer-related needs for basic mathematics in the four-state areas of Kentucky, Tennessee, Virginia, and West Virginia in 1984-85. The primary input came from teachers from each of the states who participated in a needs conference in their home state. When each of the 344 needs statements generated during the conferences was rated on a scale of 0 (low) to 5 (high) by all of the conference participants, it was found that many top-rated concerns were common for the entire region: access to hardware for teachers and students; information about software sources and reviews of software; high quality software; software that addresses topics of concern to teachers; methods of integrating computers into classroom activities; and training in computer operations and instructional uses. In addition to a description of the DAP Process of needs assessment, which was used to conduct the study, and a report of the results, this document contains four papers suggesting strategies for addressing identified needs: "Software Issues and Answers for the '80's" (M. D. Roblyer); "Hardware Issues in Using Microcomputers in Education" (Charles R. Sanders); "Computer Training for Teachers" (John Cook); and "Computer Planning and Integration Issues" (Jose Mestre). Three appendices contain a manual for the needs assessment process;

lists of need statements from the state conferences; and descriptions of 10 brochures addressing priority needs of classroom teachers.

ED284729
Teaching Mathematics with Computers: K-8.
Ropes, George H.; Swett, Shiela
1987, 75p. Photographs may not reproduce well.
Available from: Publications Sales Desk, New York State Education Department, Room 164 EBA, Washington Avenue, Albany, NY 12234.
EDRS Price—MF01/PC03 Plus Postage.
Document Type: Teaching Guide (052); Non-classroom Material (055)
Target Audience: Practitioners
Major Descriptors: *Computer Uses in Education; *Elementary School Mathematics; *Mathematics Curriculum; *Mathematics Instruction; *Secondary School Mathematics
Recent developments in computer technology have resulted in the increasing presence of computers throughout society. As a consequence, schools must prepare students to make effective use of this technology. The purpose of this document is to provide administrators and teachers in the state of New York with guidelines for developing and coordinating the use of computers in mathematics in grades K-8. The booklet consists of five sections. The section on "Planning" emphasizes the importance of establishing a broadly based planning team to facilitate the development and operation of a school district's program that integrates computersin mathematics education. The next section, "Staff Development," discusses methods of coordinating and maintaining an ongoing staff development program. A section on computer hardware provides a brief description of the types of computers used in schools, with some considerations for selection. Another section contains an overview of computer programs, including how to assess and select software that meets the needs of mathematics education. The final section, "Teaching Mathematics with Computers," describes ways to use computers as effective aids for teaching mathematics. The appendices include lists of software suppliers, computer magazines, and software directories, along with considerations for using computers with students with handicapping conditions.

ED276629
An Overview of Research: Computers in Mathematics Education, K-12. ERIC/SMEAC Mathematics Education Digest No. 1, 1986.
Suydam, Marilyn N.
1986, 3p.
Available from: SMEAC Information Reference Center, The Ohio State Univ., 1200 Chambers Rd., 3rd Floor, Columbus, OH 43212 ($1.00).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: ERIC Product (071)
Target Audience: Practitioners; Teachers
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Elementary School Mathematics; *Mathematics Achievement; *Mathematics Instruction; *Secondary School Mathematics
This digest briefly reviews some of the current findings from research on microcomputers which seem most pertinent to teachers in elementary and secondary schools. Summaries are presented of findings related to: (1) status surveys; (2) computer literacy and mathematics instruction; (3) effects of teaching computer programing; (4) tutorial computer assisted instruction and mathematics achievement; (5) computer assisted drill and practice; (6) effects on students of mathematical games played on microcomputers; (7) computer managed instruction; and (8) student attitudes.

ED284719
Computer Mathematics. A Handbook on Teaching Computer Mathematics.
Virginia State Dept. of Education
Mar 1986, 196p.
Available from: Information Officer, State Department of Education, P.O. Box PQ, Richmond, VA 23216 ($5.00; price includes 2 supplementary diskettes).
EDRS Price—MF01/PC08 Plus Postage.
Document Type: Teaching Guide (052); Computer Programs (101)
Target Audience: Practitioners; Teachers
Major Descriptors: *Computer Uses in Education; *Course Objectives; *Mathematics Curriculum; *Mathematics Instruction; *Secondary School Mathematics
The purpose of this guide is to provide a resource for teacher use in computer mathematics instruction. Although it is not intended to be used as a textbook or a complete course syllabus, the guide does include a set of student objectives which are designed to define the content of a 1-year course in computer mathematics.

The major focus of the course is to provide students with experiences in using the computer to solve problems that can be set up as mathematical models. It is also suggested that programming should permeate the entire course, ranging from simple programs involving only a few lines to more complex programs involving several sub-programs. For each objective, activities are presented to provide assistance to teachers in presenting specific topics in computer mathematics. Ideas are included which deal with key instructional elements, suggested procedures, and in some cases, applications and suggested student outcomes. A bibliography follows the text, along with appendices which relate to computer languages and enrichment activities. Supplementary to the guide are two computer diskettes, one of which is compatible with the Radio Shack TRS 80 computer and the other with Apple computers. The software includes programs designed specifically to be used with the instructional aspects of the guide.

ED275487

The Impact of Computer Assisted Instruction on Mathematics Learning Gains of Elementary & Secondary Students.

Walker, Elaine; Azumi, Jann E.

Apr 1985, 63p. Paper presented at the Annual Meeting of the American Educational Research Association (69th, Chicago, IL, March 31-April 4, 1985).

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Research Report (143); Conference Paper (150)

Target Audience: Practitioners

Major Descriptors: *Computer Assisted Instruction; *Elementary School Mathematics; *Individualized Instruction; *Mathematics Achievement; *Mathematics Instruction; *Secondary School Mathematics

In an effort to help determine the processes underlying the acquisition of various mathematical skills, this study examines some of the effects of computer based instruction on achievement in mathematics. The research reported in this document is based on the following questions: (1) what is the relationship between such attributes as sex, ethnicity, socioeconomic status, ability and mathematics achievement in computer based educational programs? (2) are there demonstrable differences in mathematics gain that are related to various content standards? and (3) how do such instructional factors as time on task and instructional management impact on achievement? These questions are addressed by looking at the performance of samples of elementary and secondary students enrolled in a drill and practice computer assisted instruction program. Among the findings of the research conducted with the elementary students were: (1) at the primary level (grades 2 and 3), students of higher ability made greater gains on the computer program; (2) there were no significant differences in performance at the intermediate level (grades 4, 5, 6); and (3) at the advanced level (grades 7 and 8) the students of lower ability had greater gains. Findings at the secondary level suggest that computer assisted instruction maximized individualized instruction and had beneficial learning effects for all ability level students. References are included.

Reading

ED273267

Reading, Writing, and Computing.

Adams, Dennis M.; And Others

[1986], 11p.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Position Paper (120)

Major Descriptors: *Comprehension; *Computer Assisted Instruction; *Reading Skills; *Word Processing; *Writing Skills

Reading, writing, and computing, which are interrelated and can thrive on each other for literacy and intellectual growth, are in the process of becoming linked in instructional practice. As reading and writing become more demanding, their task is eased with computer use. The computer seems to provide the connection between composing, comprehension, and motivation, and thereby provides a highly supportive system. Reading, writing, and computing share the common skills of visual perception, auditory perception, thinking, and comprehension, and each skill reinforces the others. (Children who read and write well are the most effective in utilizing the computer.) A well presented story can do much to motivate children to write, as well as strengthen their writing skills, vocabulary development, sequential orders, organization, and creativity. The interaction possibilities presented by technology also add a unique dimension where children "enter" the story and interact with the characters. New computer controlled videodisks make it possible to store original materials in remote locations where any number of students can simultaneously access the same materials. With computers, the affective impact of literature can be made immediate, thereby promoting an individual's understanding, interest in, and desire to read. Eight footnotes are provided.

ED274955

Microcomputer Activities Which Encourage the Reading-Writing Connection.

Balajthy, Ernest

Oct 1985, 10p. Paper presented at the Annual Meeting of the Keystone State Reading Association (18th, Erie, PA, October 1985).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Conference Paper (150); Position Paper (120)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Assisted Instruction; *Courseware; *Creative Writing; *Reading Instruction; *Reading Writing Relationship; *Teaching Methods

Many reading teachers, cognizant of the creative opportunities for skill development allowed by new reading-writing software, are choosing to use microcomputers in their classrooms full-time. Adventure story creation programs capitalize on reading-writing integration by allowing children, with appropriate assistance, to create their own "choose-your-ending" stories using the computer. These stories present to the child a series of options through which the story develops. "Story Tree" is a good example of this software. "That's My Story" and "The Playwriter Series" are similar, but are designed for younger children and need less teacher monitoring, while "The Writing Adventure" and "AdventureWriter" are more educationally sophisticated programs. A successful plan for teaching the use of complex adventure story creation software might include (1) training teacher aides in advance to use the program, (2) introducing the program to the class in a large group demonstration, (3) assigning group writing experiences for increased peer feedback and interaction, (4) establishing a disk library of stories as part of the regular classroom program, and (5) copying the file disks that contain students' created stories and trading them with other classes. An increasing variety of software which focuses on reading-writing integration, particularly "meaning-centered" software, is being offered to teachers. (A list of adventure story creation programs, publishers, and prices is included.)

ED273942

Implications of Artificial Intelligence Research for Human-Computer Interaction in Reading Instruction.

Balajthy, Ernest

Oct 1986, 9p. Paper presented at the Annual Meeting of the College Reading Association (Lexington, KY, October 23-26, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Position Paper (120); Conference Paper (150)

Target Audience: Teachers; Practitioners

Major Descriptors: *Artificial Intelligence; *Computer Assisted Instruction; *Courseware; *Reading Instruction

Noting that many language arts teachers have rejected tutorial software because of its inability to interact effectively with students, this paper explores implications of artificial intelligence research for human/computer interaction in reading instruction. Limitations of "exact match" curriculum designs in contemporary attempts to provide computerized interaction are surveyed and critiqued, and the importance of drill and practice to the development of language skills is emphasized. It is proposed that open-ended curriculum designs, which are process oriented, may help counter the limitations in developing adequate interactive programs. Finally, research questions in the development of artificial intelligence natural language systems are presented as central to the problem of "intelligent" human/computer interaction. The concluding comments assert that computers must be taught to simulate the same cognitive processes as occur in humans if meaningful interaction is to take place.

ED282175

Reading Comprehension of High School Students on Print vs. Microcomputer-Generated Text.

Feldmann, Shirley C.; Fish, Marian C.

Apr 1987, 9p. Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Media Adaptation; *Media Selection; *Reader Text Relationship; *Reading Comprehension

A study examined the relative comprehension difficulty and the influence of reader and text characteristics on reading comprehension for texts presented in traditional print or on the microcomputer screen. Two urban samples of mixed ethnicity were used, 95 low reading level high school students (grades 9 through 12) and 112 high ability eighth grade students. Students read two types of text: (1) text that disseminated information and required recall or inferences, and (2) text requiring written responses to specific directions. Each subject read one type of text passage presented either on paper or on microcomputer screen. Students also completed a

questionnaire that measured their interest in and experience with the type of reading tasks they performed and elicited their subjective evaluations of the text. In the high ability eighth grade sample, results for media and reader characteristics (interest and experience) showed no significant differences for any variable. In the high school sample, however, the microcomputer group fared significantly better than the print group on comprehension, and males using microcomputers comprehended better than females on the direction following task. In both media, strong readers found the texts easier to read and found it easier to go from the reading passages to their answer sheets than did weak readers. Most microcomputer users reported no difficulties in keeping their places on the computer screen, but a quarter said that the screen hurt their eyes. These results support presentation of curriculum materials in either medium.

ED280005

The Development of Computer-Based Instructional Systems for Training Essential Components of Reading. Final Report.

Frederiksen, John R.

Mar 1987, 119p.

EDRS Price—MF01/PC05 Plus Postage.

Document Type: Research Report (143)

Major Descriptors: *Computer Assisted Instruction; *Reading Ability; *Reading Comprehension; *Reading Instruction

A series of studies conducted to examine deficits in reading comprehension skills of low ability, young adult readers and to evaluate computer-based systems that have been designed to improve skills deficiencies in comprehension are described in this report. The studies described in the first section of the report: (1) examined readers' use of semantic entailments (such as the action "murdered" entailing an agent case, "the killer," and a patient case, "the victim") in drawing inferences from text; (2) investigated readers' use of relational terms such as causal and dversative connectives in gaining an understanding of higher order semantic relations among clauses and sentences within a text; and (3) focused on the problem of analyzing referential relations within a text. This section concludes with a discussion of the findings of the studies, which suggest that the subjects, high school students, need to develop efficient techniques for mapping referents. Studies described in the second section address the transfer of skill developed in using context for accessing concepts to the performance of high level comprehension tasks, and the use of component-based training for improving reading skills of low ability readers whose first language is not the language of instruction. The findings reported in this section suggest that bilingual students can benefit from computer-based training focusing on the development of automatic skills for both decoding and encoding orthographic information.

ED275991

Building an Anthology of "Interactive Fiction."

Lancy, David F.; Hayes, Bernard L.

Apr 1986, 15p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Independent Reading; *Problem Solving; *Reading Attitudes; *Reading Comprehension

A study determined whether students with an average interest in reading would become more interested in reading if they used interactive fiction computer games involving a quest or solving a problem in conjunction with required reading. Eight students in grades five through eight participated in a workshop that met 3 hours a day, 4 days a week, for 4 weeks. The students began with the easier games that involve little text reading and gradually moved on to the most sophisticated text-oriented interactive fiction. An observer helped the students to overcome problems in solving the quest so that the students would keep reading. All students were deeply engrossed in these programs, and the only condition that diminished student interest or motivation was an inability, after repeated attempts, to move ahead or solve a dilemma in the quest. None of the students reacted negatively to the considerable amount of reading required of most of the programs. Results suggest (1) students with no more than average interest in reading will spend large amounts of time engaged in interactive fiction that requires heavy amounts of reading if they are successful at carrying forward with the quest, and (2) interactive fiction could be used to encourage students to read independently. (A list of the interactive fiction computer programs used in the study is appended.)

ED283843

Writing to Read Program, 1985-86. Fort Worth Independent School District.

Naron, Nancy K.

Jun 1986, 115p.

EDRS Price—MF01/PC05 Plus Postage.

Document Type: Evaluative Report (142); Test, Questionnaire (160)

Major Descriptors: *Computer Assisted Instruction; *Program Evaluation; *Reading Instruction; *Writing Instruction

Writing to Read (WTR) is a computer-based instructional system designed to develop writing and reading skills. In the fall of 1985, the WTR program was implemented for the first time in some kindergarten and first-grade classes in Fort Worth Independent School District, (Texas) elementary schools. Research was conducted to evaluate: (1) the implementation of the WTR programs; (2) its effectiveness in developing students' writing and reading skills in comparison to students of similar socioeconomic status in non-WTR classrooms; and (3) the costs of continuing the WTR program at the same level of operation. Data were collected from classroom observations, staff interviewers' collected writing samples, and results of the reading subtest of Iowa Tests of Basic Skills. Continuation costs were based on lab aides' salaries, materials used, and equipment maintenance and repair. The teachers, principals, and aide were positive about the program. The findings with respect to the outcome measures of reading and writing were much weaker than expected. Due to a poor implementation design that did not allow for the assessment of the relative contribution of WTR in comparison to competing programs, the cost-effectiveness of WTR could not be validly evaluated. Writing process instruction showed promise as as cost-effective alternative. Appendices include the observation form, questionnaires, a description of writing process instruction, instructions for collecting writing samples, kindergarten and first-grade scoring criteria, examples of kindergarten and first-grade writing samples, a letter soliciting teachers' participation in scoring of writing samples, tallies of scores on kindergarten and first-grade training samples, repair cost of IBM PC Jrs under an IBM service contract, and estimated costs of computer repairs under district maintenance plans.

ED274948

Stressing Holistic Approaches to the Teaching of Reading and Writing Using Microcomputers.

Sinatra, Richard; Geisert, Gene

1986, 2p. Paper presented at the Annual Meeting of the Southwest Regional Conference of the International Reading Association (14th, San Antonio, TX, January 30-February 1, 1986).

EDRS Price—MF01 Plus Postage. PC not available from EDRS.

Document Type: Project Description (141); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Courseware; *Holistic Approach; *Reading Comprehension; *Writing Processes

An examination of the value of using more sophisticated computer programs in the language arts program led to the design and development of "Thinking Networks," which provide the teacher with a new tool for teaching through nonverbal representation. Using microcomputers to improve reading and writing instruction can incorporate the holistic approach to language learning, which emphasizes (1) the comprehending and composing of words, sentences, and paragraphs within the context of a complete discourse; (2) the synthesis of thinking; and (3) the use of language within real social contexts. The "Think Network Program" consists of software with which students can interact and, in keeping with the newest efforts to enhance the development of problem-solving, uses a graphic approach leading students to understand how a text is organized. It also ensures that students read complete stories or content area selections before booting up the disk. The comprehension work completed during network building shows students how the major and minor ideas of a reading selection are related. Other emerging holistic software programs are also requiring students to deal with whole units of text and to use decision-making, evaluation, and synthesis skills.

ED276978

Overview of Computer Applications in Reading.

Tomlinson, Louise M.

[1980], 46p.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Review Literature (070)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Assisted Instruction; *Computer Managed Instruction; *Computer Uses in Education; *Reading Instruction; *Reading Processes

Reviewing computer applications in reading and reading instruction, this article covers the following topics: the emergence of computer instruction from teaching with television, the variety of input and output devices, types of interaction between user and program, methods and approaches, degrees of generalization, scope and capacity of programs, and adaptability to and acceptance by various populations. Relevant literature is examined from the following perspectives: (1) understanding of the reading process through computers, (2) training of reading teachers through computers, (3) the use of computers in reading instruction—computer aided instruction, computer managed instruction, and the role of the programer. Some of the hardware and software mentioned include: CARIS (Computer Animated Reading Instruction), IBM 1500 (designed specifically for instructional purposes), HP2000F (computer), Commodore PET Computer, TRS-80 Voice Synthesizer, Sol-20 Computer, Lite I (Initial Reading and Job Orientation Program), and Lite II (Career Oriented Reading

in Various Job Areas), Simuread Program, and PLATO. It is urged that computers be regarded as a valuable aid to teachers in providing quality education and researching reading behavior. Conclusions speculate on why computers are not utilized more fully in reading research and instruction given their abounding capabilities and exciting applications to the field.

ED272859
The Effects of Microcomputers on Children's Attention to Reading Tasks.
Zuk, Dorie; Danner, Fred
Apr 1986, 19p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Attention Span; *Computer Assisted Instruction; *Microcomputers; *Reading Research; *Time on Task

A study investigated the effects of microcomputers on children's attention to reading tasks and the relationship between previous reading achievement and grade level on such attentional behavior. Fifty-five third and fifth graders read two stories each, one presented on a microcomputer andone presented in print. Television cartoons and rock music were presented as a distraction during the readings. Videotapes of the subjects were used to determine each subject's frequency of instances off task (FOT), cumulative time off task (TOT), and total completion time (TCT). The results indicated subjects took longer to complete the story presented on the microcomputer than one presented in text, although more subjects preferred the microcomputer presentation to the text presentation. Fifth graders were off task fewer times than third graders and completed the task faster than the third graders. In addition, significant differences were found between good, average, and poor reading achievement groups for FOT, TCT, and comprehension scores.

Science

ED277568
Product Descriptions: Database Software for Science. A MicroSIFT Quarterly Report.
Batey, Anne; And Others
Nov 1986, 24p. For a related document, see ED 277 567.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Computer Programs (101); Directory (132)
Target Audience: Practitioners
Major Descriptors: *Computer Software Reviews; *Database Producers; *Databases; *Science Materials

Specific programs and software resources are described in this report on database software for science instruction. Materials are reviewed in the categories of: (1) database management (reviewing AppleWorks, Bank Street School Filer, FileVision, Friendly Filer, MECC DataQuest: The Composer, Scholastic PFS:File, PFS:Report); (2) data files (providing system requirements, software description, supplementary materials, producer policies, and comments for nine specific programs); and (3) dedicated databases (containing descriptions of Classification, Holt Science Processors, and Information Laboratory Software: Life Science). Producer information is also provided and includes addresses and phone numbers of the identified companies.

ED277567
A Review of Database Software for Science. A MicroSIFT Quarterly Report.
Batey, Anne; And Others
Nov 1986, 17p. For a related document, see ED 277 568.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Computer Programs (101); Project Description (141); Directory (132)
Target Audience: Practitioners
Major Descriptors: *Computer Software Reviews; *Computer Uses in Education; *Database Producers; *Databases; *Instructional Improvement

The instructional uses of databases are highlighted in this report and their advantages as teaching and learning tools are emphasized. Databases reviewed are for storing, retrieving, sorting, and printing information and for manipulating information. Questions explored include: (1) how are science databases used in the classroom (covering building, designing, and using a database); (2) what are the advantages and disadvantages of using databases; (3) what science database software is available (reviewing the types of database software and providing a list of products and descriptions of data files and dedicated databases); and (4) what are the technical capabilities of science database software (describing the capabilities in terms of searching, fields, records, reporting and sorting). Producer information is provided and consists of addresses and phone numbers of the companies.

ED280734

Sex Differences Related to Graphing Skills in Microcomputer-Based Labs.

Brasell, Heather

Apr 1987, 7p. Paper presented at the Annual Meeting of the National Association of Research in Science Teaching (60th, Washington, DC, April 23-25, 1987).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Research Report (143)

Target Audience: Practitioners

Major Descriptors: *Computer Assisted Instruction; *Females; *Instructional Improvement; *Science Instruction; *Sex Differences; *Skill Development

As part of an investigation of the effectiveness of a microcomputer-based laboratory (MBL) activity in developing students' graphing skills, this study was specifically designed to examine the differences between females and males in both performance on graphing tasks and on their attitudes to graphs and graph-based activities. Results based on a pretest of the participating secondary level students (N=93) revealed that about one-fifth of the students were seriously restricted in their ability to understand graphs by an inadequate graph schema. Females who had poor graph schemas appeared to have been constrained by their comparatively low ability, whereas the males were more likely to have been constrained by lack of interest. After controlling for differences in ability, some sex differences in performance on graphing tasks remained. Females had lower scores for items involving speed or velocity graphs, but not for graphs of miscellaneous graphs of less abstract properties such as distance. Discussed in this paper are two treatment groups that constructed distance and velocity graphs for one class period: (1) MBL group (N=18) used the microcomputer; (2) second (control) group (N=18) used paper and pencil. The females who participated in the MBL treatment gained significantly higher scores than the males on a posttest of distance graphs, while the reverse was true for velocity items. There were no sex differences for students in the control treatment. It was concluded that the MBL experience was effective in improving students' graphing skills.

ED280737

Programming Language Choice: A Positive albeit Ambiguous Case for BASIC Programming in Secondary Science Teaching.

Cobern, William W.

Mar 1986, 21p.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Position Paper (120); Non-classroom Material (055)

Target Audience: Practitioners

Major Descriptors: *Computer Science Education; *Computer Uses in Education; *Programing Languages; *Secondary School Science; *Skill Development

With the purpose of addressing the area of language choice in computer programming, this paper specifically addresses the use of BASIC as a language for secondary level students. Perspectives are offered on: (1) the role of computers in science education; (2) the differences in quality and intent of PASCAL and BASIC; (3) the role of a non-structured programming language approach; and (4) the problem of cognitive matching. An increase in research is advocated for such areas as the roles of programming in science education, an analysis of the task structure and curriculum demand of languages such as PASCAL, and the effect of prior unstructured programming experience on the acquisition of structured programming skills. A reference list is also provided.

ED271288

Problem-Solving Rules for Genetics.

Collins, Angelo

1986, 36p. Paper presented at the Annual Meeting of the American Educational Research Association (70th, San Francisco, CA, April 16-20, 1986).

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Project Description (141); Conference Paper (150)

Target Audience: Practitioners

Major Descriptors: *Computer Assisted Instruction; *Genetics; *Problem Solving; *Programed Tutoring; *Science Instruction; *Secondary School Science

The categories and applications of strategic knowledge as these relate to problem solving in the area of transmission genetics are examined in this research study. The role of computer simulations in helping students acquire the strategic knowledge necessary to solve realistic transmission genetics problems was emphasized. The Genetics Construction Kit (GCK) was the simulation program used to generate transmission genetics problems in this study. The two sources of strategic knowledge required to solve these problems came from the rational analysis of each class of problems and from the analysis of the performance of experts solving such problems. The rational analysis and the analysis of the performance of experts were used to modify and

supplement each other in order to construct a description of desired performance for solving realistic, computer-generated transmission genetics problems. Information presented on these two sources included: (1) a general description, (2) data redescription, (3) solution synthesis, and (4) solution assessment. It appears feasible that a computer tutoring system together with an expert system can be designed and implemented to enable students to solve realistic computer generated transmission genetics problems.

ED273447
Science Computer Software. A Handbook on Selection and Classroom Use.
Good, Ron
Jul 1986, 48p.
Document Type: Directory (132)
Target Audience: Practitioners; Teachers
Major Descriptors: *Biology; *Chemistry; *Computer Assisted Instruction; *Courseware; *Physics; *Science Instruction

Designed for use by elementary and secondary school science teachers, this document provides selected lists of computer software collected by the Science and Mathematics Software (SAMS) lab at Florida State University. The commercially available software is compiled under the subject areas of biology, chemistry, and physics. Each list provides: (1) recommended grade level; (2) type of software (e.g. drill and practice, tutorial, simulation, game, tool); (3) publisher; and (4) price. Included are reviews done by the SAMS lab on selected software from each discipline. Twelve software programs are reviewed in the biology section, ten in chemistry, and eight in physics. The chapter on chemistry also mentions additional software available through the National Science Foundation-funded project SERAPHIM at Eastern Michigan University. Addresses of publishers/distributors of all the commercial software listed are also included.

ED276444
A Case Study of a Computer Assisted Learning Unit, "The Growth Curve of Microorganisms": Development, Implementation, and Evaluation.
Huppert, Jehuda; Lazarovitz, Reuven
Oct 1986, 12p. In: *Thinking across the Disciplines. ISII 1986. Proceedings of the Annual Conference of the International Society for Individualized Instruction (15th, Atlanta, Georgia, October 9-11, 1986); see ED 276 428.*
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Project Description (141); Conference Paper (150)
Target Audience: Researchers
Major Descriptors: *Biology; *Computer Simulation; *Instructional Development; *Learning Activities

This three-part paper describes the development of a software program called "The Growth Curve of Microorganisms" for a tenth-grade biology class. Designed to improve students' cognitive skills, the program enables them to investigate, through computer simulations, the impact upon the growth curve of a population of three variables: temperature, nutrient concentrations, and initial cell numbers. In presenting the sequence of the developmental steps, the first section of this report examines the basic assumptions of using computer-assisted learning (CAL) in the classroom and the criteria for efficiency, the formation of a team of developers, and how the team works. The description of the program in the second section includes the rationale for using the microcomputers and its integration into learning activities in the classroom and the laboratory, the four steps covered by the computer simulations, and the procedures for a self-assessment test. The third section discusses three factors involved in the implementation process: classroom setting, the student and self-paced progress, and the role of the teacher in the classroom. Four flow charts are provided which depict the modular course, steps of the development team stage, student self-paced activities, and classroom management activities.

ED284723
Teacher Behavior in Whole Class Computer-Mediated Instruction.
Kellogg, Theodore M.; Leonard, Carol
1987, 13p. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching (60th, Washington, DC, April 23-25, 1987).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Research Report (143); Conference Paper (150)
Target Audience: Practitioners; Researchers
Major Descriptors: *Biology; *Computer Assisted Instruction; *Science Instruction; *Science Teachers; *Secondary School Science; *Teacher Role

A university consortium recently undertook a project designed to explore the use of technology in teaching high school biology as a means of engaging students actively in the scientific method, and in changing the role of the teacher from lecturer and conclusion drawer to initiator and facilitator. The study examined the degree

to which teachers fulfilled the intended role in a classroom setting in which a single computer was an integral part of the presentation of the lessons. Materials were developed to be presented by computer to an intact class of students, and interest centered on the computer's effect on teachers' instructional behavior, especially their asking behavior. Results indicated that the use of a single computer in a whole class setting is a viable instructional model. Teacher question-asking behavior seems to be able to be modified by the use of the computer, since teachers in this study tended to ask more high level inquiry questions than traditionally reported in the literature. Examples of questions in the high and low level inquiry categories asked by the teachers are included in the appendix.

ED283505

The Effects of Computer Animated Orienting Activities and Practice on Application and Problem Solving Skills in an Elementary Science Lesson: An Exploratory Study.

Rieber, Lloyd P.; Hannafin, Michael J.

Feb 1987, 7p. Paper presented at the Annual Meeting of the Association for Educational Communications and Technology (Atlanta, GA, February 26-March 1, 1987).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Research Report (143); Conference Paper (150)

Target Audience: Researchers

Major Descriptors: *Advance Organizers; *Computer Assisted Instruction; *Drills (Practice); *Instructional Design; *Intermode Differences

A study was carried out at Pennsylvania State University to examine the effects of both textual and computer animated orienting activities—i.e., mediators through which new information is presented to the learner—and practice on the application and problem solving skills of elementary school students. It was hypothesized that students provided with orienting materials containing textual and animated information would acquire both skills more effectively than students provided either activity alone or neither activity. It was further hypothesized that practice would be of greatest value where orienting support was minimal. Subjects consisted of 111 fourth, fifth, and sixth grade students from a rural public elementary school who were randomly assigned to either a text, animated, or text plus animated orienting activity group, or to a control group having no orienting activity. Groups were divided into practice and no practice subgroups. Upon completion of the computer-assisted instruction lesson, students were administered a posttest measuring both application and problem solving skills. Results indicated that the nature of the orienting activity did not affect the learning of either application or problem solving skills; however, practice was found to hamper performance for both skills, and no interactions were detected.

ED274516

How To Build a Better Mousetrap and 13 Other Science Projects Using the Apple II.

Vernier, David L.

1986, 225p.

Available from: Vernier Software, 2920 S.W. 89th Ave., Portland, OR 97225 ($24.95, includes sample programs disk and shipping).

EDRS Price—MF01 Plus Postage. PC not available from EDRS.

Document Type: Teaching Guide (052); Computer Programs (101)

Target Audience: Practitioners

Major Descriptors: *Computer Assisted Instruction; *Physical Sciences; *Science Activities; *Science Experiments; *Secondary School Science

Science projects which can be used by high school students who have minimal experience with computers or electronics are presented in this book on laboratory interfacing. These laboratory interfacing projects include either the connecting of measuring instruments directly to a computer or using a computer to control external devices. All of the 14 projects of this book involve construction of electric circuits that connect to the Apple II plus or IIe game port. In each case, a core project is discussed and step-by-step instructions are given for its assembly and testing. Descriptions of each project include: (1) project requirements (containing electronics and programming information, lists of parts, supplies, and tools); (2) background information (examining the scientific basis of the project); (3) step-by-step instructions (specifying the methodology in building and using the project); (4) troubleshooting (offering corrective suggestions); (5) project extensions (recommending additional experiments); and (6) supplemental information (consisting of science and mathematics information and data on electronic components). A disk with sample programs is available.

ED273452

Commercial Software for Teaching Physics.

Walters, William L.

1986, 18p. Paper presented at the Joint Meeting of the American Association of Physics Teachers and the American Physical Society (Atlanta, GA, January 27-31, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Directory (132)

Target Audience: Practitioners; Teachers

Major Descriptors: *College Science; *Computer Assisted Instruction; *Courseware; *Physics; *Science Materials; *Secondary School Science

Computer software packages that are commercially available for physics instruction are compiled in this paper. Information for each program includes: the broad subject category (i.e., mechanics, waves and sound, heat and thermodynamics, electricity and magnetism, optics and light, modern physics, mathematical models, or general reference/testing material); level of instruction; computer compatibility; intended purpose (e.g. demonstration, simulation, data handling, remedial, exercises); and citations concerning where, if at all, the software has been reviewed. A key is provided that explains the coding systems used in the listing. Vendor addresses are also provided. (Prices are not given.)

ED277560

The Effect of Teacher Involvement on Student Performance in a Computer-Based Science Simulation.

Waugh, Michael L.

1986, 13p.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Research report (143)

Target Audience: Practitioners

Major Descriptors: *Computer Assisted Instruction; *Computer Simulation; *Earth Science; *Science Instruction; *Secondary School Science; *Teaching Methods

Designed to investigate whether or not science teachers can positively influence student achievement in, and attitude toward, science, this study focused on a specific teaching strategy and utilization of a computer-based simulation. The software package used in the study was the simulation, Volcanoes, by Earthware Computer Services. The sample population consisted of 20 average and below average eighth grade earth science students who were randomly assigned to one of two computer simulation laboratories. Teacher behavior varied between the two laboratories. In one laboratory, the teacher was a content and simulation expert, employed a discovery and questioning approach to instruction, and moved about among the students. In the other laboratory, the teacher played the role of one unfamiliar with the content of the simulation, offered only minimal assistance, and remained at the teacher's desk. Student attitudes and achievement were measured. Positive attitudes toward science, scientists, and microcomputers were evidenced. Based on the posttest measure, neither laboratory group learned significantly more than the other about the content of the volcanoes simulation. Results are discussed and the attributes of good simulation courseware are specified.

ED283709

AIMS Newsletter. Volume 1. Numbers 1-10, August-May, 1986-87.

Wiebe, Arthur, Ed.; Hillen, Judith A., Ed.

AIMS Newsletter, v1 n1-10 Aug-May 1986-87

1987, 338p.

Available from: AIMS Education Foundation, P. O. Box 7766, Fresno, CA 93747 (subscription $22.50 per year).

EDRS Price—MF01 Plus Postage. PC not available from EDRS.

Document Type: Serial (022)

Target Audience: Practitioners

Major Descriptors: *Elementary School Mathematics; *Elementary School Science; *Mathematics Instruction; *Science Instruction; *Secondary School Mathematics; *Secondary School Science

Project AIMS (Activities that Integrate Mathematics and Science) produces a variety of curriculum materials that deal with the integration of learning experiences, problem solving activities, and the use of cooperative learning. This document is a compilation of the AIMS newsletters published during the 1986-87 academic year. Each of the ten issues contains: (1) three new, previously unpublished and reproducible activities (one each for the K-2, 3-5, and 6-9 grade level ranges); (2) two 8.5 x 11 inch blackline masters featuring one of the new science posters and one of the new problem solving mathematics posters; (3) a feature article about a school, school district, or state that is implementing the AIMS program in a systematic manner, describing the specifics of those efforts that may be helpful to others; (4) a feature article about one member of the AIMS National Leadership Network; (5) information about the release of new publications and new programs; (6) a special section devoted to Project SETUP (Software Evaluation and Teaching Utilities Program) software and book reviews; and (7) a reader's corner, which features teachers' comments and suggestions for the use of particular investigations, as well as teacher-developed adaptations for special student groups.

Social Studies

ED282802
The Role of the Computer in the Teaching of Social Studies.
Bolt, Robert
[1986], 13p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Research Report (143)
Target Audience: Teachers; Administrators; Practitioners
Major Descriptors: *Computer Assisted Instruction; *Computer Simulation; *Computer Software; *Databases; *Social Studies;

Computers can be used in a variety of ways in the social studies classroom: (1) as a productivity tool to relieve the teacher of the many bookkeeping tasks and allow for more time to be spent on instructional tasks; (2) in business applications such as data base files, electronic spreadsheets, word processing, computer graphics, and to store large amounts of information that would be unwieldly otherwise; and (3) as a tool for individualized tutoring and in teaching the higher levels of learning such as problem solving and decision making. Research on effective classroom use of computers is cited. However, the full potential of instructional computing will not be realized until educators take the time to discover the power and possibilities of this technology.

ED271372
How to Incorporate the Computer into the Social Studies Classroom.
Dockterman, David; Snyder, Tom
1986, 13p.
Available from: Tom Snyder Productions, Inc., Educational Software, 123 Mt. Auburn Street, Cambridge, MA 02138.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Teaching Guide (052)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Assisted Instruction; *Computer Uses in Education; *Educational Technology; *Social Studies; *Teaching Methods

This brochure offers answers to 13 questions about using computers in the social studies classroom. Written by teachers for teachers, its goal is to provide a foundation to consider whether or not computers have a place in the classroom and how to go about using them if they do. The questions are: "What's in this booklet?" "Should I be using computers in my social studies classroom?" "What can I do with computers that I couldn't do before?" "Where do I start?" "What can I do with a computer lab?" "What can I do with one or two computers in my classroom?" "What can I do with a computer permanently in my classroom?" "What do I need to know?" "How do I find good software?" "How do I evaluate software?" "How do I find the time to find software, learn how to use it, and become comfortable with the technology?" "Where do I find the space for this equipment?" and "Where can I get the resources for the hardware and software I want?"

ED273526
Technology in a Curriculum for Citizenship.
Eckenrod, James S.; Rockman, Saul
20 Jun 1986, 50p. Paper presented at the Annual Conference of the Social Science Education Consortium (Stanford, CA, June 20, 1986).
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Project Description (141); Conference Paper (150)
Target Audience: Policymakers
Major Descriptors: *Citizenship Education; *Computer Assisted Instruction; *Computer Managed Instruction; *Educational Technology; *Microcomputers; *Television

The implicit power of modern communications technologies to improve citizenship education is explored in this paper. The relationship between the use of educational technology and the effectiveness of social studies instruction are only beginning to be studied, and these inquiries have been focused more upon the "harder" science dimensions of the social studies, geography and economics, than on the "softer" areas of civic competency or citizenship education. After a brief review of the literature, the outcomes of projects designed to help teachers make better use of technology in social studies instruction are described. These projects, part of the Technology in the Curriculum (TIC) Program dealing with mathematics, science, and language arts, in addition to history-social science, were funded to help teachers use technology to enhance and extend their curriculum programs and to redirect the emphasis of the state's Teacher Education and Computer Centers (TECCs) from a concentration upon "computer literacy" for everyone toward the use of technology to improve instruction.

ED284825
Computer-Based Education in the Social Studies.
Ehman, Lee H.; Glenn, Allen D.
1987, 73p.
Available from: Publication Manager, Social Studies Development Center, Indiana University, 2805 East Tenth Street, Bloomington, IN 47405.
EDRS Price—MF01/PC03 Plus Postage.
Document Type: ERIC Product (071); Project Description (141)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Computer Uses in Education; *Educational Media; *Educational Technology; *Social Studies; *Teaching Methods
Computers have not revolutionized social studies curricula because so few teachers use them. But research does indicate that computers are flexible instructional tools that can assist in the development of attitudes, intellectual motivation, and inquiry skills. Social studies educators need to consider expanded computer use in their classrooms because computers assist in the preparation of students for effective participation in society. Teachers must understand how technology affects instruction, learning, and classroom environments, along with the types of effective instructional strategies that can be used to achieve specific goals. Educators should acquire the knowledge and experience needed to use computers by reviewing research relating to computer use in teaching and to instructional strategies. Information on research concerning the impact of computers on students, how computers change the way teachers work, computers' effect on the training process, and computers' influence on the social studies curriculum is included. Necessary teacher competencies and appropriate instructional uses are explored through an analysis of teacher utility programs, databases, data analysis programs, and simulations. A 76-item bibliography concludes the document.

ED277619
The Use of Computers in the Teaching of Geography.
Kent, W. Ashley, Ed.
1986, 210p. Edition prepared for the 1986 International Geographical Union Regional Conference (Sitges, Spain, August 1986).
EDRS Price—MF01/PC09 Plus Postage.
Document Type: Project Description (141)
Target Audience: Researchers
Major Descriptors: *Computer Assisted Instruction; *Geography; *Geography Instruction; *International Programs; *Microcomputers
Eleven essays describe state of the art developments in the use of computers and computer-assisted learning to teach geography. Descriptions of the use of computers in the teaching of geography in their respective countries are contributed by educators from the United Kingdom, Italy, Belgium, The Netherlands, Australia, New Zealand, Scotland, United States, USSR, Hong Kong, and Canada. The contributors were asked to summarize recent developments; outline hardware and software trends; note the response of teachers in using computers; outline the research needs; and give insight into the future. It is hoped this publication will point to future collaborative research and development possibilities for the international community of geographical educators.

ED280787
Developmental Stages in School Computer Use: Neither Marx Nor Piaget.
Lengel, James G.
May 1986, 16p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Project Description (141); Position Paper (120)
Target Audience: Policymakers; Teachers; Practitioners
Major Descriptors: *Computer Assisted Instruction; *Computers; *Computer Uses in Education; *Social Studies
Karl Marx's theory of stages can be applied to computer use in the schools. The first stage, the P Stage, comprises the entry of the computer into the school. Computer use at this stage is personal and tends to center around one personality. Social studies teachers are seldom among this select few. The second stage of computer use, the D Stage, is characterized by the diffusion of computers into other areas of the school. The social studies teachers harbor great hopes at the D Stage. They expect computers to help students with the drill and memorization of the basic facts so they can proceed to the more important concepts. Disillusionment often accompanies the second half of the D Stage although computers do not wither away. In the T Stage the computer

is seen and used chiefly as a tool, and is rarely considered as an end in itself or as an object to be studied. Jean Piaget posited stages of growth and concluded with Marx that students cannot go from stage one to stage three without moving through stage two. It may be possible for social studies teachers, however, to skip over the peculiarities of programming and the disappointment of drill-and-practice since social studies software for the T Stage is readily available from commercial publishers. A jump right into the T Stage may, in fact, be the best way for the social studies to enter the information age.

ED277604
Correlating Computer Database Programs with Social Studies Instruction.
Northwest Regional Educational Lab.
Jun 1986, 24p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Teaching Guide (052)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Databases; *Data Interpretation; *Microcomputers

This unit emphasizes the integration of software in a focus on the classroom instruction process. Student activities are based on plans and ideas for instructional units presented by a teacher who describes and demonstrates the activities. Integration has occurred when computer applications are included in an instructional activity. This guide should provide models for actual use, along with advice on planning, preparation, and teaching. Part 1, "Unit Description," provides an outline of the unit including objectives, lesson descriptions, time schedules, and materials for teacher preparation. Part 2, "Teacher Resources," includes sections entitled "How are the Social Studies Database products used in the classroom?" and "What are the advantages and disadvantages of using Databases?"; an outline of pre-activities which introduce databases to students; and a list of activities for developing the concept of databases and information searching. Part 3, "Student Activities," includes lesson plans entitled: "Retrieving Information"; "Recognizing Patterns and Analyzing Relationships"; and "Interpreting Data and Making Predictions." An Apple II+ or IIe personal computer is required, as are one "MECC Dataquest: The Fifty States" diskette per computer and 50 "State Information" cards which can be made by using the MECC Dataquest program.

ED271357
Creating and Using Databases in the Social Studies.
Russ, Michael
Printout, v3 n3 p3-7 May 1986
May 1986, 7p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Teaching Guide (052); Journal Article (080)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Assisted Instruction; *Databases; *Social Studies

Student use of microcomputer databases in social studies is discussed. Databases give students and teachers an opportunity to get involved in information storage, retrieval, and analysis. In the process, students develop skills of inquiry, problem-solving, and critical thinking, as well as many of the basic skills needed not only in social studies but in other school subjects and life outside of school. The technology is now available to give students practical, first-hand experience with real-world information management. The article concludes with a bibliography that features both software and readings.

ED279950
Computer-Assisted Instruction to Avert Teen Pregnancy.
Starn, Jane Ryburn; Paperny, David M.
Sep 1986, 11p. Paper presented at the Annual Meeting of the American Public Health Association (114th, Las Vegas, NV, September 28-October 2, 1986).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Adolescents; *Computer Assisted Instruction; *Family Life Education; *Pregnancy; *Prevention; *Sex Education

Teenage pregnancy has become a major public health problem in the United States. A study was conducted to assess an intervention based upon computer-assisted instruction (CAI) to avert teenage pregnancy. Social learning and decision theory were applied to mediate the adolescent environment through CAI so that adolescent development would be enhanced, fostering mature decision making. A non-random comparative design was implemented in five high schools on the island of Oahu. High school students (N=718) served as either control subjects or as experimental subjects who played one of two computer games, either Baby Game

or Romance. Experimental subjects rated the games favorably. Compared to controls, significantly more of the Baby Game players could identify the time required for child care, and the costs for childbirth, care for the first year of life, and raising a child to age 18. Compared to controls, significantly more of the Romance players reported they would ask a health professional for birth control advice, find it easy to get and use birth control, and identify effective and noneffective methods of birth control. Informal follow-up interviews revealed that pregnancy rates were lower in two settings where the games had been implemented for over one year. These preliminary findings suggest that CAI may be a viable intervention to avert teenage pregnancy. Further research is being planned.

ED273518
Database Software for Social Studies. A MicroSIFT Quarterly Report.
Weaver, Dave
May 1986, 60p.
EDRS Price—MF01/PC03 Plus Postage.
Document Type: Directory (132)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Software; *Computer Uses in Education; *Databases; *Social Studies

The report describes and evaluates the use of a set of learning tools called database managers and their creation of databases to help teach problem solving skills in social studies. Details include the design, building, and use of databases in a social studies setting, along with advantages and disadvantages of using them. The three types of available packages are discussed with descriptions and comments for each: (1) general purpose database management programs include AppleWorks, Bank Street Beginner's Filer, Bank Street School Filer, Create-a-Base, Data Handler, Electric Desk, FileVision, Friendly Filer, Mastertype's Filer, MECC Dataquest: The Composer, MECC Stuff and Fetch, Notebook Filer, Rapid Recall, Scholastic PFS: File Series, Secret Filer, and Three to Get Ready; (2) data disks for database managers programs include Countries of the World, Friendly File: US & World Facts, NewsWorks, North America Database Disk, Regions Near and Far Data Files, Social Studies Fact Finder: States-Junior High, Social Studies Fact Finder: States-Senior High, United States Past to Present, U.S. Government Data Bases for PFS: file, U.S. History Data Bases for PFS, World Geography: Cultures & Economics, World Past to Present, World Today; and (3) dedicated databases programs include Atlas, Demo-Graphics: World Population & Projections, Hometown: A Local Area Study, Macro's World History Database, MECC Dataquest: The Fifty States, MECC Dataquest: The Presidents, MECC Dataquest: The Composer, One World Countries Database, Political Genie, Research, Today in History, USA Profile, and the U.S. Constitution: Then and Now. The products are compared according to feature and capability areas: searching capabilities; fields; records; reporting; and sorting. Educators rated the products using the following criteria: accurate content; relevant categories; enough information; comprehensive print materials; easy to learn and use; accessible data; and flexible displays. Some general conclusions are given about the products, such as expense, flexibility and comparison of features and capabilities. An appendix includes additional information about database managers, producer information, resources, and a seven-item bibliography.

Vocational Education

ED275828
Computer Utilization in Industrial Arts/Technology Education. Curriculum Guide.
Connecticut Industrial Arts Association
Jun 1986, 160p.
EDRS Price—MF01/PC07 Plus Postage.
Document Type: Teaching Guide (052)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Industrial Arts; *Technological Advancement; *Technological Literacy; *Vocational Education

This guide is intended to assist industrial arts/technology education teachers in helping students in grades K-12 understand the impact of computers and computer technology in the world. Discussed in the introductory sections are the ways in which computers have changed the face of business, industry, and education and training; the scope and sequence of industrial arts from the elementary through the secondary grades with specific guidelines for each grade level; the goals and provisions of the Education for All Handicapped Children Act; and the purpose and organization of the guide. The second major section consists of computer study and applications units on the following topics: history and development of computers, principles of computer systems, computer-aided design/drafting (CAD), computer graphics, computer-aided manufacturing (CAM) and computer-integrated manufacturing (CIM), microprocessors, robotics, telecommunications, computer-assisted instruction (CAI), data management, and careers. Presented next is an implementation suggestion matrix that proposes a wide variety of ways in which computer use might be integrated into industrial arts

programming. Hardware system configurations for a general-use computer station are outlined. Appendixes to the guide include lists of related periodicals, software resources, and software evaluation criteria; a glossary; and a bibliography.

ED276885
Computer Aided Design in the Classroom.
Duelm, Brian Lee
Dec 1986, 30p. Paper presented at the Annual Convention of the American Vocational Association (Dallas, TX, December 6, 1986).
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Review Literature (070); Conference Paper (150)
Target Audience: Teachers; Practitioners
Major Descriptors: *Courseware; *Drafting; *Media Selection; *Program Development; *Trade and Industrial Education
Estimates calling for 1.2 million computer-assisted design (CAD) operator positions to be available by 1990 have prompted educational institutions throughout the country to incorporate instruction in CAD into their industrial arts curricula. Therefore, the question for schools is not whether to buy but rather what to buy. An effective strategy for purchasing CAD software should include the following steps: formation of a selection committee, comprehensive research on the concepts of CAD, formulation of a rationale for purchase, consideration of at least 15 points before selecting a CAD system, and negotiation with several vendors once a CAD system has been chosen. There are three approaches to establishing CAD competencies in any drafting setting. Instruction in CAD can be introduced (1) after students have developed proficiency in manual skills and a drafting discipline, (2) by establishing competency in a drafting discipline using computers instead of drawing boards, or (3) by first establishing an elementary competency in a drafting discipline using freehand sketching and then using CAD and manual skills together for industrial-quality work. Regardless of the integration method chosen, students working with CAD software need to develop prerequisite competencies in basic programming, trigonometry and analytical geometry, and a drafting discipline. (Appendixes to this report include lists of publishers of recommended course materials and microcomputer CAD software vendors, a form for evaluating CAD systems, and a directory of microcomputer CAD systems for education.)

ED274836
Data Processing Curriculum Guide.
East Texas State Univ., Commerce. Occupational Curriculum Lab.
1986, 52p. For related documents, see ED 274 834-837. Document is printed on colored paper.
Available from: Occupational Curriculum Laboratory, East Texas State University, Commerce, TX 75428 (Order No. BO-201-TG: $3.00; with core document, BO-200-TG: $22.00).
EDRS Price—MF01/PC03 Plus Postage.
Document Type: Teaching Guide (052)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Oriented Programs; *Data Processing; *Office Occupations Education
As one of a series of curriculum guides for office education programs in Texas, this guide contains five units of instruction in data processing. Each of the units consists of these components: unit outline, performance chart for rating students, notes to the instructor, unit overview (content of unit with illustrations as needed), test, and transparency masters. Teacher and student activities, as well as educational resources, are suggested, and estimated completion time is provided for each unit. Units cover the following topics: data processing concepts and skills, data entry skills, computer operations, programming and languages, and data presentation and storage. In addition, six appendixes contain lists of processing resources, publishers, and professional publications; an occupational curriculum laboratory reference list for data processing; plans for classroom organization; and a data processing training plan.

ED284042
A Study of the Status of Computer Usage in Industrial Technology Programs in Idaho J.H. and Secondary Schools.
Edmison, Glenn A.; And Others
Aug 1987, 32p. Paper presented at the Annual Conference of the Idaho Vocational Association (Boise, ID, August 3-6, 1987).
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *High Schools; *Junior High Schools; *Technological Literacy; *Trade and Industrial Education
A study examined the extent to which microcomputers are being used by industrial technology teachers in Idaho public junior and senior high schools. The express purpose of the study was to develop an information

base upon which teacher educators and administrators could design pre- and inservice teacher education curricula. The survey questionnaire was mailed to 209 industrial technology teachers throughout the state. A total of 128 (61 percent) were eventually returned. The teachers reported using a total of 257 computers, with plans to purchase an additional 117 in the near future. Most of the computers now used belong to the Apple family, and most of those surveyed plan to continue using the brand. Most computers were located in a computer or industrial technology lab. Other locations included the main office, library, drawing room, chemistry lab, composition lab, typing room, or math and science rooms. The areas of drafting and graphic arts had the most software available. Robotics, construction/woodworking, and manufacturing were the areas in which the greatest desire for software was expressed. Funding and availability of hardware were identified as the greatest barriers to infusing computer instruction into industrial technology programs. It was concluded that teachers would benefit most from workshops covering basic computer literacy and computer use skills, criteria or selecting computers for an industrial technology program, use of available software and authoring systems to develop customized courseware, and special applications related to industrial technology (including robotics and computer-aided design and manufacturing).

ED279908
Illinois Vocational Home Economics Curriculum Guide. Addenda.
Keenan, Dorothy; And Others
1984, 245p. For the curriculum guide, see ED 220 639.
EDRS Price—MF01/PC10 Plus Postage.
Document Type: Teaching Guide (052)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Uses in Education; *Entrepreneurship; *Home Economics; *Occupational Home Economics; *Older Adults; *Technological Advancement

These addenda are divided into eight sections. Section 1contains content and activities for teaching the practical application of science and mathematics in home economics classes. A number of activities are suggested for specific topics and objectives. Some general ideas for learning experiences are listed. Section 2 provides entrepreneurship transparency masters and teacher materials, including a content outline, selected bibliography, and lists of resource people and resource material. Section 3 is a fashion/fabric coordinator program. It presents a program flowchart, content outline, and activities. Section 4 is a unit entitled "High Touch in a High Tech Society." It contains a topic outline and activities on dealing with technological change. Section 5 provides quality indicators for use in assessing program components. Section 6 contains recommendations of the State Superintendent for the State Board of Education regarding its policy on the definition of schooling and the state's expectations for student learning. Section 7 contains materials for a companion course on interacting with the elderly, entitled "Understanding of and Employment with the Elderly." A content outline and activities are provided. Section 8 provides materials on computer selection, computer glossary, sources of home economics-related software, and brief descriptions of software.

ED273247
Traditional Method versus Computer-Aided Instruction Method in Teaching BASIC Programming to Vocational High School Students.
Koohang, Alex A.
[1984], 9p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Evaluative Report (142)
Target Audience: Researchers
Major Descriptors: *Computer Assisted Instruction; *Instructional Effectiveness; *Intermode Differences; *Lecture Method; *Programing

The purpose of this study was to investigate the effectiveness of computer-aided instruction as compared with the traditional lecture method of cognitive learning of new curriculum materials. It was hypothesized that students instructed by the computer-aided instruction method would gain higher knowledge of the subject matter in terms of cognitive test scores than students instructed by the traditional method. Subjects were high school students in a vocational education program who were randomly selected and assigned to a control group (n=35) and an experimental group(n=35). Both groups received instruction on one area of BASIC programming in agriculture. The measuring instrument consisted of two identical forms of a test. The content validity of the test was determined by a panel of experts. To determine the test-retest reliability of the test, it was administered to 10 undergraduate students in agriculture education at Southern Illinois University at Carbondale, who retook the same test two weeks later. The Pearson product-moment correlation coefficient was calculated, and the reliability coefficient was considered acceptable. The control group for the experiment received instruction via a lecture by the researcher, whereas the experimental group used the computer program for instruction. The pretest and posttest were administered to both groups prior to and following the instructional treatments. Results of an independent t-test performed on the test results for both groups indicate that the computer-aided

instruction method was more effective than the traditional method, but it is suggested that further studies should be done.

ED282027
Microcomputer Software for Vocational Education.
Levy, Laurie, Comp.
Apr 1985, 239p.
EDRS Price—MF01/PC10 Plus Postage.
Document Type: Directory (132)
Target Audience: Teachers; Practitioners
Major Descriptors: *Agricultural Education; *Courseware; *Home Economics; *Microcomputers; *Office Occupations Education; *Trade and Industrial Education

This listing offers educators a resource for locating microcomputer software to meet the specific needs of their vocational programsand students. Approximately 650 separate items of microcomputer software for vocational education programs are included. The software is categorized under 10 skill areas: agriculture, business, careers, computer literacy, consumer education, distributive education, health, home economics, special needs, and trade and industrial. The listing for each piece of software includes this information: program title, skill area, description (a synopsis of the description that appears in the software catalog), focus (any subheading of the skill area), vendor/publisher (marketer of the software), system requirements, computer, price, special requirements/adaptability (additional features of the program that allow flexibility for special needs purposes), and copyright/back-up policy (explanation of manufacturer's policy). Appendixes include a copy of the form used for these listings, a copy of the software review form (for evaluation of the software), a copy ofthe software evaluation form used by the National Center for Research in Vocational Education, and a list of software catalogs.

ED284012
Evander Childs High School Computer-Literacy and Word-Processing Skills for Bilingual Students 1985-1986. O.E.A. Evaluation Section Report.
New York City Board of Education
1986, 48p. For the 1984-1985 report, see ED 269 548. Prepared by the O.E.A. Bilingual Education Evaluation Unit.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Evaluative Report (142)
Major Descriptors: *Academic Achievement; *Bilingual Students; *Computer Literacy; *English (Second Language); *Limited English Speaking; *Word Processing

A program sought to enhance the educational achievement and employability of 167 Hispanic students of limited English proficiency in grades 9-12 through elective courses in keyboarding, computer literacy, word processing, and automated accounting. The instructional approach was based on students' English proficiency. Students with the least English proficiency were taught primarily in Spanish; students with greater proficiency were taught in English. In addition to English as a second language, native language arts, and bilingual content-area instruction, all students were enrolled in classes in keyboarding conducted in English and Spanish. Supportive services were also offered to program participants. Program objectives were assessed in English language development (Criterion Referenced English SyntaxTest—CREST and the Regents Competency Test—RCT in reading), work study/work readiness skills (staff-developed examination), and attendance (school and program records). A quantitative analysis of students' achievement data indicated that program objectives were met. Program students mastered an average of 1.8 CREST objectives per month in the fall and 2.3 in the spring; demonstrated statistically significant gains on the RCT and in work study/work readiness tables are appended.)

ED282029
Micromaniac Introduces You to the Computer. Teacher and Student Editions.
Prickett, Charlotte; Sorrels, Robert
Sep 1985, 200p.
EDRS Price—MF01/PC08 Plus Postage.
Document Type: Teaching Guide (052); Instructional Material (051)
Target Audience: Teachers; Students; Practitioners
Major Descriptors: *Computer Literacy; *Computer Oriented Programs; *Microcomputers; *Vocational Education

This curriculum consists of a common core of computer-related knowledge and skills that emphasize developing knowledgeable users of microcomputers rather than computer programmers, technicians, or engineers. Teacher and student editions are provided. Eleven competency-based modules are included.

Modules 1, 3, 4, and 6 emphasize hands-on skills necessary to begin operating any microcomputer effectively. These user skills constitute the heart of the curriculum and are intended to be learned at the keyboard. They are handling hardware, the manual, the operating system, and peripherals. Modules 2, 5, 7, and 8 are awareness sections, which cover how the computer works, history, impact, and careers. Modules 9-11 introduce the most common applications of microcomputers in business: wordprocessing, database, and spreadsheet. The first page of each module identifies the competency to be learned, the performance objectives, and activities. The body of each module consists of reading assignments and learning activities. The modules are intended to serve as a largely self-directed, self-paced guide to learning. Specific teaching suggestions are found in handwritten notes in the margins of the teacher's edition. Appendixes include a glossary, worksheets, and pretest/posttest with key. The student edition contains only the modules.

ED284409

VOC-PLAN: Individual Vocational Education Plan (A Quick, Efficient and Creative Way to Generate Vocational I.E.P.s), Users Manual and Preview Manual.

Robinson, Jim; Seabolt, Pete

1986, 156p.

Available from: Piney Mountain Press, Inc., P.O. Box 333, Cleveland, GA 30545.

EDRS Price—MF01/PC07 Plus Postage.

Document Type: Non-classroom Material (055)

Target Audience: Practitioners

Major Descriptors: *Computer Managed Instruction; *Computer Software; *Disabilities; *Individualized Education Programs; *Student Educational Objectives; *Vocational Education

This User's Manual is intended to accompany VOC-PLAN, a computer (Apple) program designed to assist in the preparation of an Individualized Vocational Education Program (IVEP) for handicapped, disadvantaged, or regular vocational secondary and postsecondary students. The program is presented in standard IEP (Individualized Education Program) format and allows the user to define criteria for mastery, evaluation techniques, review dates, and tasks mastered for each vocational objective. The program contains over 2,500 short term vocational objectives in such areas as agriculture, auto body work, construction, cosmetology, data processing, marketing, drafting, electronics, food service, graphic arts, health, home economics, horticulture, industrial arts, metals, and transportation. Voc-Plan includes a program disk, a data disk for each vocational training area requested, a student disk, the User's Manual, and 50 standard IEP forms. The manual contains instructions for the following program actions: creating an IEP, printing IEP objectives, changing IEP data disk, printing the student IEP, getting/saving and erasing the IEP from disk, erasing the IEP from memory, adding/editing IEP objectives, creating a student disk, and quitting. A full listing of the short term vocational objectives by area are appended, comprising the greater part of the document. Also included is a preview manual with a program description and sample screen layouts.

ED281021

Developing a Personal Plan for Microcomputer Competency. Microcomputer Applications for Vocational Teachers: A Competency-Based Approach—Book A.

Roth, Gene; Tesolowski, Dennis

Jun 1986, 137p. For related handbooks, see ED 281 022-025.

EDRS Price—MF01/PC06 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Literacy; *Computer Uses in Education; *Microcomputers; *Planning; *Teacher Improvement; *Vocational Education Teachers

This handbook is the first in a series of five competency-based resource guides on microcomputer applications for vocational teachers. The five units of instruction in this handbook are concerned with the content of the eight competencies included in the category, "Developing a Personal Plan for Microcomputer Competency." Units are designed to prepare the teacher to do the following: (1) define the elements of a local education agency (LEA) plan for computer-based instruction (CBI), (2) define the vocationalinstructor's role in the LEA plan for CBI, (3) conduct a personal assessment of microcomputer competency, (4) set personal goals and construct and implement a personal plan for microcomputer competency, and (5) evaluate and modify a personal plan for microcomputer competency. Components of each unit include unit and specific objectives, informative material, sample forms and evaluation measures, examples, a summary, achievement indicators, and a list of references. A prose glossary and glossary of terms are appended.

ED281022

Integrating Competency-Based Instruction into Vocational Education. Microcomputer Applications for Vocational Teachers: A Competency-Based Approach—Book B.

Roth, Gene; Tesolowski, Dennis

Jun 1986, 75p. For related handbooks, see ED 281 021-025.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Competency Based Education; *Computer Assisted Instruction; *Curriculum Evaluation; *Microcomputers; *Teacher Improvement; *Vocational Education Teachers

This handbook is the second in a series of five competency-based resource guides on microcomputer applications for vocational teachers. The seven units of instruction in this handbook are concerned with the content of the eight competencies included in the category, "Integrating Competency-Based Instruction into Vocational Education." Units are designed to prepare the teacher to do the following: (1) include job-specific applications of microcomputers in vocational curricula, (2) identify educational applications of microcomputers for inclusion in vocational curricula, (3) develop a plan to apply computer-based instruction to vocational curricula, (4) demonstrate an awareness of microcomputer software for developing computer-based vocational curricula, (5) write specifications for hardware and software based upon vocational curricula requirements, (6) implement a plan to apply computer-based instruction to vocational curricula, and (7) evaluate and modify applications of computer-based instruction to vocational curricula based on innovations in computer technology and work. Components of each unit include unit and specific objectives, informative material, sample forms and evaluation measures, examples, a summary, achievement indicators, and a list of references.

ED281025

Performing Classroom Management Functions with Competency-Based Instruction. Microcomputer Applications for Vocational Teachers: A Competency-Based Approach—Book E.

Roth, Gene; Tesolowski, Dennis

Jun 1986, 44p. For related handbooks, see ED 281 021-024.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Classroom Techniques; *Computer Managed Instruction; *Microcomputers; *Teacher Improvement; *Vocational Education Teachers

This handbook is the fifth in a series of five competency-based resource guides on microcomputer applications for vocational teachers. The four units of instruction in this handbook are concerned with the content of the 10 competencies included in the category, "Performing Classroom Management Functions with Competency-Based Instruction." Unit topics are (1) determining classroom management activities; (2) maintaining classroom rosters, attendance records, and inventories; (3) generating tests, scoring tests, and recording grades or performance progress; and (4) managing avocational student organization. Components of each unit include unit and specific objectives, informative material, sample forms and evaluation measures, examples, a summary, achievement indicators, and a list of references.

ED281024

Planning and Organizing the Vocational Education Learning Environment for Competency-Based Instruction. Microcomputer Applications for Vocational Teachers: A Competency-Based Approach—Book D.

Roth, Gene; Tesolowski, Dennis

Jun 1986, 65p. For related handbooks, see ED 281 021-025.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Competency Based Education; *Computer Uses in Education; *Educational Environment; *Educational Facilities Planning; *Teacher Improvement; *Vocational Education Teachers

This handbook is the fourth in a series of five competency-based resource guides on microcomputer applications for vocational teachers. The six units of instruction in this handbook are concerned with the content of the seven competencies included in the category, "Planning and Organizing the Vocational Education Learning Environment for Competency-Based Instruction." Units are designed to prepare teachers to do the following: (1) develop a plan to implement competency-based instruction (CBI) in the vocational learning environment, (2) project resource needs for CBI, (3) provide microcomputer maintenance, (4) establish microcomputer user data security, (5) establish microcomputer hardware/software security, and (6) create authorized backup copies of microcomputer software. Components of each unit include unit and specific objectives, informative material, sample forms and evaluation measures, examples, a summary, achievement indicators, and a list of references.

ED281023

Planning, Executing, and Evaluating Competency-Based Instruction. Microcomputer Applications for Vocational Teachers: A Competency-Based Approach—Book C.

Roth, Gene; Tesolowski, Dennis

Jun 1986, 104p. For related handbooks, see ED 281 021-025.

EDRS Price—MF01/PC05 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Assisted Instruction; *Courseware; *Microcomputers; *Teacher Improvement; *Teaching Methods; *Vocational Education Teachers

This handbook is the third in a series of five competency-based resource guides on microcomputer applications for vocational teachers. The 13 units of instruction in this handbook are concerned with the content of the 14 competencies included in the category, "Planning, Executing, and Evaluating Competency-Based Instruction." Units are designed to prepare teachers to do the following: (1) differentiate among applications of computer-based instruction (CBI), (2) assess students' needs for specific CBI applications, (3) develop lesson plans for incorporating CBI, (4) select appropriate software for specific instructional purposes, (5) modify software, (6) design software, (7) prepare instructional materials to accompany software, (8) modify software documentation for specific instructional use, (9) orient students to CBI, (10) execute CBI, (11) individualize instruction with CBI, (12) assess students' microcomputer skills, and (13) evaluate and modify CBI based on student achievement. Components of each unit include unit and specific objectives, informative material, sample forms and evaluation measures, examples, a summary, achievement indicators, and a list of references.

ED274868

Microcomputer Applications in Secondary Health Occupations Education: State of the Art.

Shelly, Richard W.

1985, 74p.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Research Report (143); Test, Questionnaire (160)

Major Descriptors: *Allied Health Occupations Education; *Computer Assisted Instruction; *Courseware; *Microcomputers

A study was undertaken to identify the different ways and the extent to which microcomputers are being used in secondary health occupations education (HOE) programs, the amount and types of applicable software and level of support for microcomputer-based HOE, and available literature reflecting or supporting the development of computer-assisted instruction in HOE. Data were collected from a literature review and surveys of 180 vendors of microcomputers and related courseware and 150 teachers and 35 supervisors of HOE programs. It was discovered that although commercially produced software that is appropriate for use in secondary HOE programs does exist, the selection is quite limited. Commercial educational software developers were largely unaware of the existence of a need for HOE courseware, and most HOE teachers surveyed were unaware of the magnitude of the software gap that exists in HOE. No single commercial software development company whose primary focus was HOE software was found. Drill-and-practice software was used most frequently, whereas simulation courseware (the one that appeared to be the most effective) was the least used and least available. Only 1 in 10 teachers surveyed was using microcomputers in an HOE program. (This report includes a taxonomy of microcomputer software for HOE teachers, a 67-item reference list, and appendixes containing the letter sent to vendors to solicit information for the study and the teacher and supervisor survey instruments.)

ED284011

High Technology Needs Assessment.

Louisiana State Dept. of Education

Oct 1986, 70p.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Research Report (143); Test, Questionnaire (160)

Major Descriptors: *Computer Oriented Programs; *Futures (of Society); *Manufacturing Industry; *Needs Assessment; *Technological Advancement

A project produced a high technology status report providing needs assessment data for educational planning. The purpose was to determine the impact and future of high technology in Louisiana. Information was obtained from 68 Louisiana manufacturing industries by mailed questionnaire. Data indicated that 45 industries were involved in high tech. A majority of the industries were involved in high technology through the use of Computer-Aided Drafting (CAD) Equipment; they became involved in high technology as a method to increase production. Information was collected on types of computer hardware and software packages, Computer Numerical Control (CNC) equipment and software packages, CAD equipment and software pack-

ages, and industrial robots used. When Louisiana industries recruited for high technology positions, most required either a B.S. in engineering or industrial technology. More internal or in-house training and vendor training were needed by industry to implement high technology. A future high tech educational requirement by industry was projected for trained individuals, preferably in the area of CAD. Most industries anticipated one to five new positions. Important CAD competencies were use and understanding of terminology and application of basic drafting techniques, important CNC competencies were knowledge of machining processes and familiarity with hardware and operation, and robot safety was viewed as very important.

ED270631

A Comparison of the Importance of Competencies for Applying Microcomputers in Vocational Education.

Tesolowski, Dennis G.; Roth, Gene L.

Apr 1986, 29p.; Paper presented at the Annual Meeting of the American Educational Research Association (70th, San Francisco, CA, April 16-20, 1986).

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Competence; *Computer Oriented Programs; *Microcomputers; *Relevance (Education); *Vocational Education Teachers

A national sample of 134 vocational educators, representing 6 vocational disciplines (agriculture, business, home economics, marketing and distribution, trade and industrial, and health occupations education), was surveyed to ascertain the relative importance of 47 competencies for applying microcomputers in vocational education. The 12-member DACUM (Developing A CurriculUM) panel that generated the core of this competency profile was used as a comparison group in this investigation. A one-way ANOVA (analysis of variance) procedure was used to determine if significant differences occurred between the groups' importance ratings on the five categories into which the competencies were grouped and their respective competencies. T-tests were used to identify which groups differed significantly. The groups' ratings did not differ on the categories; however, there were significant differences on 5 of the 47 competencies: (1) define the instructor's role in computer-based instruction (CBI); (2) demonstrate an awareness of microcomputer software; (3) assess students' needs for CBI applications; (4) orient students to CBI; and (5) assess students' microcomputer skills. Health, business, and marketing and distribution educators placed the highest level of importance on the five competencies, while home economics, agriculture, and trade and industrial instructors placed the least importance on them. This finding may reflect a split between high-technology and lowtechnology areas of the curriculum. Mastery of the content related to the 47 competencies can provide vocational teachers with opportunities to apply emerging technologies to the pursuit of excellence in curriculum, instruction, and the advancement of students from school to work.

ED274831

Introduction to Computers for Home Economics Teachers.

Thompson, Cecelia; And Others

1986, 36p.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Non-classroom Material (055)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Literacy; *Computer Oriented Programs; *Computer Software; *Home Economics; *Microcomputers

Written in simple language and designed in a large-print format, this short guide is aimed at teaching home economics teachers to use computers in their classrooms. The guide is organized in six sections. The first section covers the basics of computer equipment and explains how computers work while the second section outlines how to use computers, including the disk operating system and the disk drive. The third section provides information on caring for computers, including general care and maintenance, handling the diskette, troubleshooting, and classroom security. In the fourth section, various teacher uses for computers are reviewed, such as computer programs for word processing, teacher planning, computer-aided instruction, evaluation and grade reports, building a software collection, creating software, and the BASIC programming language. The fifth section applies computer use to the home economics classroom and suggests content area applications for the various fields of home economics. The final section is a glossary of computer terminology.

ED279881

Integrated Computing. Vocational Education Curriculum Guide. Business Education.

West Virginia State Vocational Curriculum Lab.

Jan 1987, 31p.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Literacy; *Computers; *Data Processing Occupations; *Keyboarding (Data Entry); *Office Occupations Education; *Word Processing

This curriculum guide provides the basic curriculum components required to develop lesson plans that address the learning outcomes for the area of integrated computing. It is not a complete, self-contained curriculum. Instead, the guide provides the teacher with a number of informational items related to the learning outcomes and allows him/her the flexibility to design instructional activities, select resources, and deliver instruction most appropriate for the learner and learning environment. Information for the teacher includes suggestions for development of instructional activities, instruction, and evaluation of learner performance. This area of study is divided into 15 learning outcomes. Each learning outcome is divided into one to three associated tasks. For each task these types of information are provided: performance standard; required tools, resources, equipment, and situations; performance steps (where applicable); and enabling objectives. Representative topics upon which learning outcomes focus include keyboarding techniques on the computer keyboard, computer literacy, the concept of integrated software, use of specialized and integrated software, word processing, proofreading, spreadsheets, file and database management, telecommunications and electronic mail, accounting applications, and database creation.

Writing

ED281210

Product Descriptions; Word Processors and Writing Activities for the Elementary Grades. A MicroSIFT Quarterly Report.

Batey, Anne; Ricketts, Dick

Feb 1987, 31p. For a companion report, see ED 281 211.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Evaluative Report (142); Non-classroom Material (055)

Major Descriptors: *Computer Software; *Word Processing; *Writing Exercises; *Writing Instruction

Intended to help educators choose the most appropriate word processing products for elementary school writing instruction, this report provides extensive information on 12 word processor and 13 writing activity software products. A list of components, general descriptions, comments and evaluations are included for each product. The products described are as follows: (1) Bank Street Writer III (Activity Files, volumes 1 and 2); (2) Bard's "Pro-Am" Writing System; (3) "FrEdWriter" (with FrEd lessons); (4) "HomeWord Plus"; (5) LogoWriter; (6) "Magic Slate," (I Can Write! Be a Writer! and Write with Me!); (7) MasterType's Writer; (8) MECC Writer (Ghost Writer, MECC Speller, and MECC Write Start); (9) Milliken Word Processor, (Prewriting, Postwriting and Writing Workshop Activity Files; (10) SchoolWriter; (11) Snoopy Writer; and (12) The Writer's Assistant (Interactive Writing Tools). Producer information is included with each description and listed again at the end of the report.

ED281211

Word Processors and Writing Activities for the Elementary Grades. A MicroSIFT Quarterly Report.

Batey, Anne; Ricketts, Dick

Feb 1987, 12p. For a companion report, see ED 281 210.

EDRS Price—MF01/PC01 Plus Postage.

Language: English

Document Type: Position Paper (120); Non-classroom Material (055); Evaluative Report (142)

Major Descriptors: *Computer Software; *Learning Activities; *Word Processing; *Writing Exercises; *Writing Instruction

Intended to help educators choose the most appropriate word processing products for elementary school writing instruction, this report provides information about 12 word processor software products and 13 writing activity products. These products and the writing activities they use are as follows: (1) Bank Street Writer III (Activity Files, volumes 1 and 2); (2) Bard's "Pro-Am" Writing System; (3) FrEdWriter (FrEdWriter Lessons); (4) HomeWord Plus; (5) LogoWriter; (6) Magic Slate (I Can Write! Be a Writer! and Write with Me!); (7) MasterType's Writer; (8) MECC Writer (Ghost Writer, MECC Speller, and MECC Write Start); (9) Milliken Word Processor (Prewriting, Postwriting, and Activity Files); (10) SchoolWriter; (11) Snoopy Writer; and (12) The Writer's Assistant (Interactive Writing Tools). The report provides information about features to look for when buying word processors, explanations of the evaluation process used in choosing the listed products, tables of comparative data (including price and feature information), recommendations pertaining to each word processor, and addresses and phone numbers for each processor's manufacturer.

ED283162
"Mac"Roon and White: A School Newspaper Comes of Age on a Macintosh Computer.
Crawford, Wayne
[1987], 26p. Sample of newspaper, "Maroon and White" may be marginally legible.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Project Description (141)
Major Descriptors: *Computer Uses in Education; *Journalism Education; *Revision (Written Composition); *School Newspapers; *Writing Processes

After placing second in an international school newspaper competition for which they had won first prize seven consecutive years, and discovering that the reasons for the drop included typographical errors and poor printing, the staff of the student newspaper of Danville (Illinois) High School invested in a Macintosh 128K computer. The Macintosh provides the mechanism for both typesetting and graphic design, and with its purchase the newspaper staff took on 99% of the press work required to print the "Maroon and White." With this added work came savings and control, but a greater investment of both time and new skills was required, and a creative, computer-literate adviser with adequate release time was also needed. Greater student involvement became essential, but greater output was the result. Students no longer mind revising and are eager to check for misspelled words, grammatical errors, quotes without attribution, and other problems. The computer enables students to be far more objective about their own writing and helped them make the "Maroon and White" solely a student effort. The Macintosh offers a variety of print sizes and styles and has impressive graphic capabilities. It takes some time and effort to learn how to get the most out of a computer, but since the results include a more professional-looking newspaper and students more confident in their abilities, the extra effort appears to be worth it. (A copy of a sample newspaper issue is included.)

ED276400
Experimental Software Project: Final Report. Program Report 86-10.
Dickson, W. Patrick
Jul 1986, 52p.
EDRS Price—MF01/PC03 Plus Postage.
Document Type: Computer Programs (101); Project Description (141)
Target Audience: Researchers; Practitioners
Major Descriptors: *Computer Software; *Microcomputers; *Systems Development; *Videodisks; *Word Processing; *Writing (Composition)

Focusing on the application of new technologies to the creation of rich environments for writing, this project entailed the assembling of a low-cost microcomputer system that included a microcomputer, speech synthesis, voice recognition, and videodisk player. A variety of alternative input devices were explored, and software that permitted the smooth integration of these different technologies was developed. Summaries are provided of the development and pilot testing of the Talking Text Editor, exploration of videodisks and development of the Video Browser Program, development of the Name Frame Program as a bridge between the Video Browser and the Talking Text Editor, pilot testing of the videodisk integrated with word processors, and pilot testing of the voice recognition system. References are provided, and program listings for the Integrated Writing Environment Software (Talking Text Editor, Video Browser Program, and Name Frame Program) are appended.

ED274963
The Role of Instruction in Revising with Computers: Forming a Construct for "Good Writing."
Flinn, Jane Zeni
[1986], 33p.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Research Report (143)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Assisted Instruction; *Revision (Written Composition); *Teaching Methods; *Writing Instruction; *Writing Processes; *Writing Research

Using J. Dewey's "reconstruction of experience" concept of revision, a study employed ethnographic methods to investigate the effects of computer assisted writing instruction on students' revising processes. Primary subjects, eight sixth-graders, completed a structured revision task on their compositions, with varying degrees of computer interaction. Data sources included fieldnotes, interviews, audiotapes, videotapes, and writing samples. Retrospective interviews were conducted with the two primary case study writers, and their experiences were related to the revision patterns of 61 students in four classes. Statistics showed that students using computers to revise their compositions wrote longer papers and received slightly higher holistic scores. However, findings revealed that the most striking differences had little to do with computers—class means corresponded dramatically with instructional emphasis. Results suggested that students revised according to a construct of "good writing" that could be linked to three instructional emphases: fluency, word choice, and

mechanics. Results also indicated that revision of fluency, word choice, and mechanics could be taught. Thus, the results suggest that the revision process is driven by instructional emphasis, not computer interaction. (Interviews and scoring of the two primary case study writers and statistical tables are included.)

ED277015
Report on the Writer's Workbench and Other Writing Tools.
Hazen, Margret; And Others
29 Nov 1986, 139p. Light print in portions of appended material may affect legibility.
EDRS Price—MF01/PC06 Plus Postage.
Document Type: Research Report (143); Review Literature (070)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Instructional Material Evaluation; *Word Processing; *Writing Instruction; *Writing Processes

Comparing the effectiveness of several comprehensive computer-assisted writing tools, this final report on the Writing Tools Project evaluates five IBM programs—"Writer's Workbench" (WWB), "HBJ Writer," "Rightwriter," "UNC-CH Write," and "Writing Is Thinking"—and two Macintosh programs—"Writer's Helper" and "ALP MacProof." Each program is discussed separately and the project's design and implementation are detailed. The following summary observations were made: (1) the programs' analysis of computer text offered relatively little applicable advice; (2) although most programs were on-screen versions of traditional prewriting techniques, these methods may be more effective in computer form because they individualize the process and students prefer the anonymity and novelty of computer suggestions; and (3) the fluidity and neat, objective appearance of the words on the screen and the ease with which writers can edit and rearrange text made these programs powerful writing tools. Appendixes, which make up more than half of the document, include the WWB Proposal; a job description (lab assistant); a mailing list; the WWB Lab Survey; memos circulated to students, instructors, staff, administrators, and attendees involved in the project; faculty and student comments; a chart comparing the software; WWB documents; a sample student paper; and sample output from "HBJ Writer," "Rightwriter," "Writer's Helper," and "Writer's Workbench."

ED273979
Collaborative Practices during Computer Writing in a First Grade Classroom.
Heap, James L.
Mar 1986, 34p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986).
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Cooperation; *Word Processing; *Writing Instruction; *Writing Processes; *Writing Research

A study examined the behavior of first graders as they collaborated on a writing exercise using a word processor. Data were collected over three weeks in the form of fieldnotes and 13.5 hours of videotape of students working at the computer. Videotapes were examined to locate patterns of discourse and physical actions, and by abstracting from the data, the type of structured phenomena which they could be taken to exemplify was idealized. The data revealed these types of behaviors: (1) the student designated as the writer had the right and obligation to compose, the right and responsibility to input, and the right to arrange; (2) the student designated as the helper had the appurtenance to compose, the license to input, and the right to arrange and responsibility for arranging. Concerning production problems during collaboration, the writer had to explain his or her orientation to production problems and how they would be solved, while the helper determined when the designated writer became oriented to problems and how he or she intended to solve those problems. Use of the computer in a collaborative setting enhanced its advantage of allowing writers to input and arrange their screen document with ease, to alter those documents, and to read them. The computer also allowed, and virtually required, students writing together to use all of the language arts. A reference list is included.

ED278387
Collaboration in Word Processing. Education and Technology Series.
Heap, James L.; Moore, Shawn
1986, 80p.
Available from: Publications Sales, The Ontario Institute for Studies in Education, 252 Bloor Street West, Toronto, Ontario, Canada M5S 1V6.
EDRS Price—MF01/PC04 Plus Postage.
Document Type: Research Report (143)
Target Audience: Researchers
Major Descriptors: *Computer Assisted Instruction; *Creative Writing; *Grade 1; *Group Activities; *Microcomputers; *Word Processing

A study investigating collaborative computer use for writing at the primary level was conducted at a Catholic school in Toronto through videotaping and observation in a first grade classroom over a period of 3 weeks. It was found that the differentiation of tasks by the computer into two types of acts—inputting signs and arranging text—was tailor-made for the division of rights and responsibilities between the writer and the helper for composing, inputting, and arranging text. Consideration of both the benefits and impediments to writing arising from the collaborative practices that were used, led to the conclusion that collaboration should facilitate the development of all the language arts skills, especially in multi-lingual classrooms. Although the advantages of having a helper for acquiring skill as a writer were less clear cut, it seems that having a helper may help the writer to acquire habits of self-monitoring, self-regulation, and developing a sense of audience. Placing the single computer in the classroom near the teacher's desk was found to facilitate both observation and interaction with students. It was also found that students should bring a dictionary to each writing session; helpers should be good instructors and knowledgeable about the computer; the hardware and software selected must have the capability to print multiple copies; the technical helper should be able to offer assistance easily from either side of the keyboard; and the word processing program must be simple to use.

ED283196

A Comparison of Writing Instruction Using Word Processing, Word Processing with Voice Synthesis, and No Word Processing in Kindergarten and First Grade.

Kurth, Ruth J.; Kurth, Lila M.

Apr 1987, 16p. Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Conference Paper (150); Research Report (143)

Major Descriptors: *Computer Assisted Instruction; *Word Processing; *Writing Improvement; *Writing Instruction; *Writing Readiness

A study was conducted in which word processing and voice synthesis were used to teach beginning writing skills to kindergarten and first grade students. Subjects, 46 children from two elementary schools enrolled in an early education summer school class in writing, were randomly divided into three groups. One group was taught writing using a beginning-level word processor and printer. The second group used a word processor capable of synthesized speech and a printer. The final group did not use word processing equipment but had access to a copying machine and were allowed to make transparencies of their stories for sharing. The children in the two word processing groups were given three sessions of keyboard training before they started writing (the voice synthesizer group was taught the "talk" command). Students were asked to write six stories in the two-week period and were encouraged to form collaborative and editing groups. Each child was assigned two "writing helpers" and had to have each story approved by them before turning it in. Results indicated that very young children can benefit from instruction using word processors and voice synthesizers, and that using these devices seemed to foster collaborative writing. The use of word processing cannot substitute for quality writing instruction, but a combination of the two can facilitate group discussion and peer editing. (27 references)

ED277049

Using Word Processing to Enhance Revision Strategies during Student Composing.

Kurth, Ruth J.

Apr 1986, 22p. Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Research Report (143); Conference Paper (150)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Assisted Instruction; *Revision (Written Composition); *Teaching Methods; *Word Processing; *Writing Instruction; *Writing Processes

A study examined whether the use of word processors would enhance the amount and quality of students' revisions. Subjects, 28 high school sophomores and juniors enrolled in a special class for interested writers, met twice a week for 60 minutes in either a computer laboratory (experimental group) or in a regular classroom (control group). Findings showed that students learned basic word processing skills quickly and with only limited practice. Results indicated that the use of word processing in composition had motivational value, facilitated group discussions about writing, and helped foster peer editing. However, findings also showed that neither the length of the two groups' compositions nor the amount or quality of their revisions differed significantly. Analyses revealed that the experimental group had misspelled significantly fewer words than the control group—probably because it had access to a "spell checker." Questionnaires given to both groups to measure their attitudes about writing indicated that the experimental group felt significantly more positive than the control group about the instruction they had received, about their ability to write, and about editing groups. Overall, results showed that word processing can enhance the teaching of composition but cannot substitute for quality instruction in the entire writing process. A 46-item reference list is appended.

ED283195

Word Processing and Composition Revision Strategies.

Kurth, Ruth J.

Apr 1987, 16p. Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987). For a related document, see ED 277 049.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Conference Paper (150); Research Report (143)

Major Descriptors: *Computer Uses in Education; *Revision (Written Composition); *Word Processing; *Writing Improvement; *Writing Instruction; *Writing Processes

A study was conducted to determine whether the use of word processing improves both the amount and the quality of revision done by high school students. Subjects were 24 ninth grade students enrolled in a special class for interested writers, and therefore probably better than average ninth grade writers. Twelve students were assigned to an experimental group and instructed in composition using computer word processing. The remaining students did not use word processors. Students in both groups were taught skills in prewriting, draft writing, revising, and editing, and were given ample opportunity to use them. Each student was assigned four compositions, which were evaluated and graded. Students could turn in as many drafts as they wanted. In each group students were assigned to revising/editing subgroups and were required to consult with them at least once before turning in any final draft. Results of the grading and evaluations indicated that word processing programs enhanced writing instruction. The group that used the word processors wrote more substantial compositions than did the other group. (Tables of data and 45 references are included.)

ED280055

Invention Aids for Computer-Based Writing: Expanding the Horizons through Collaborative Invention.

Langston, M. Diane

20 Mar 1987, 12p. Paper presented at the Annual Meeting of the Conference on College Composition and Communication (38th, Atlanta, GA, March 19-21, 1987).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Review Literature (070); Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Rhetorical Invention; *Writing Instruction; *Writing Processes; *Writing Research

"Cognoter(tm)" and "CB" software, two new computer-based writing tools that rely on shared texts and real-time communication among participants and support collaborative invention, have implications for invention pedagogy and research. Cognoter improves on current invention aids by combining a brainstorming tool, a graphical linking tool, and an outlining tool. An aid designed for use by groups to further the collaborative development of presentations, Cognoter can also suggest new heuristics that might become the basis for invention aids. While not explicitly oriented to supporting inventional activities, CB software essentially allows users to send each other messages in real time via a network. CB's social, conversation-based approach offers several potential benefits for invention pedagogy: (1) it provides a naturalistic setting for introducing formalized heuristics; (2) with the teachers online, the use of more advanced techniques can be demonstrated in context; and (3) new heuristics could grow out of online conversations. Collaborative tools such as Cognoter and CB may make inventional activities more explicit, and may also reveal that the inventional behavior of groups is different from that of an individual. However, researchers must be careful in interpreting the large body of data generated by these collaborative invention tools.

ED282913

Using Young Children's Writing Samples in Program Evaluation.

Naron, Nancy K.; Elliot, Norbert

Apr 1987, 73p. Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987). Appendices D and E may not reproduce well.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Conference Paper (150); Research Report (143)

Target Audience: Researchers

Major Descriptors: *Computer Assisted Instruction; *Program Evaluation; *Writing Evaluation; *Writing Processes; *Writing Skills

A writing assessment study was conducted in the Fort Worth Independent School District (Texas) in the spring of 1986 as part of a larger program evaluation study of the Writing to Read (WTR) Program. WTR is a computer-based instructional system designed to develop the writing and reading skills of kindergarten and first-grade students. Two types of comparisons were conducted to address the effectiveness of WTR: (1) writing skills of WTR participants with those of students of the same grade level in traditional classrooms; and (2) the

writing skills of WTR participants with those of students whose teachers had been trained in Writing Process (WP) instruction. A total of 215 kindergarten and 270 first-grade writing samples were collected. The samples were scored by kindergarten and first-grade teachers. The results indicated no differences between the writing samples of first-grade students in WTR and traditional classes, but first-graders in WP classes scored significantly higher than those in the other two groups. When the scores of kindergarten students in WTR, WP, and traditional classrooms were compared, the WTR students scored highest, WP students next highest, and traditional students scored the lowest. However, the sample selection for this comparison carried some gross limitations. The comparison between writing samples of WTR and traditional kindergartners, which did not have sample selection constraints, indicated no significant differences between the writing scores of these two groups. Appendices include: (1) instructions for collecting writing samples; (2) scoring criteria; and (3) examples of writing samples.

ED281216
Teaching Writing with the Microcomputer. Fastback 254.
Schaeffer, E. Marilyn
1987, 43p. This publication was sponsored by the Miami University Chapter of Phi Delta Kappa. Photographs may not reproduce well.
Available From: Phi Delta Kappa, Eighth and Union, Box 789, Bloomington, IN 47402 ($0.90).
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Teaching Guide (052)
Target Audience: Teachers; Practitioners
Major Descriptors: *Computer Assisted Instruction; Revision (Written Composition); *Teaching Methods; *Word Processing; *Writing Instruction; *Writing Skills

Intended as a guide for elementary school teachers who want to use the computer as a writing tool in their classrooms, this booklet offers an outline of practical information and techniques for introducing young children to computers in kindergarten through grade 6. The first chapter explains the process approach to writing and advocates computer use to generate student enthusiasm for writing, while the second chapter discusses solving writing problems with the word processor. The third chapter offers activities for the word processor as a writing tool and is subdivided as follows: (1) kindergarten—the process begins; (2) first grade—introducing a simple-word processing package; (3) second grade—simple revision commands; (4) third grade—beginning to control the system; (5) fourth grade—a year of transition; (6) fifth grade—extended application; and (7) sixth grade—full use of the system. The remaining two chapters discuss possible problems and practical solutions and how to select word-processing software. A brief conclusion recapitulates the ideas about the promise of microcomputers that underlie the manual, and a list of references is appended.

ED283211
The Student as Producer and Consumer of Text: Computer Uses in English Studies.
Schwartz, Helen J.
[1986], 14p.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Teaching Guide (052)
Major Descriptors: *Computer Assisted Instruction; *Computer Uses in Education; *Expository Writing; *Writing Exercises; *Writing Instruction

Computer use in the English classroom has the potential to help students enjoy and integrate their learning of writing and reading of literature in new ways. This new relationship between the student and machine-readable text can be thought of in terms of Alvin Toffler's theory of the "prosumer," a person who uses Information Age technology to combine the role of producer and consumer. Computer use in English classrooms can integrate the study of literature and creative writing, reading skills and writing skills, giving the student a new "prosumer" role as both producer and consumer of text. Three approaches can be used to integrate the study of imaginative writing produced by professional writers and the creative efforts of students: (1) the same software or technique can be used to analyze student and professional work; (2) software can guide students in creating imaginative work and then lead to activities analyzing published works; and (3) computer programs can involve students as collaborators in the creation of literary works. In the realm of expository writing, computer aided instruction and word processing can also blur the distinction between the student as consumer and as producer, with programs for prewriting and text analysis and spelling or style checkers. Teachers can remind students that the computer's suggestions are only guidelines by showing them how a style checker would try to rewrite the work of famous authors. (Sixteen references, including specific software cited in the text, are appended.)

ED283863

Productivity Program: The Use of Technology to Improve Writing Skills Projects, 1985-86 School Year. Statewide Evaluation Report.

Shaver, James P.

1 Aug 1986, 195p. Two pages of the document contain light, broken type.

EDRS Price—MF01/PC08 Plus Postage.

Document Type: Evaluative Report (142); Test, Questionnaires (160)

Major Descriptors: *Computer Assisted Instruction; *Program Evaluation; *State Programs; *Student Attitudes; *Writing Instruction; *Writing Skills

The Writing-Aid and Author's Helper (WANDAH) computer writing system, funded by the Utah State Office of Education Productivity Program, was used successfully in the Logan High School in the 1984-85 school year. Seven additional projects were funded to replicate the Logan project throughout Utah during 1985-86. The main objective of the projects was to improve students' writing skills by increasing the amount of writing which students did and the amount of individualized writing aid they received. In each project lab, there were only 12 to 20 computers, not enough to accommodate a total class of students, primarily 11th and 12th graders. This report presents the results of a statewide level evaluation of the WANDAH Project. At each project, students, teachers, and principals were interviewed. Quantitative data on students' writing performance and attitudes were collected through pre- and posttests. Results showed that WANDAH projects made significant contributions to educational productivity (greater goal achievement without decreasing student teacher ratios). The quantity of writing instruction and the amount of student writing increased. The quality of students' writing and their attitudes towards writing on the computer improved as well. Appendices include: (1) 1985-86 WANDAH productivity projects and the schedule of site visits; (2) preliminary reports, project guidelines and statewide executive summary; (3) site visit and testing letters; (4) site visit interview guidelines; (5) posttest writing prompts and instructions; (6) revision tally sheet and scoring instructions and attitude surveys; (7) holistic scoring procedures and guidelines; (8) descriptions of the dependent measures; (9) pretest and posttest means and standard deviations; (10) analyses of adjusted and unadjusted posttest means; and (11) analyses sent to third-party evaluators. Three tables are included.

SPECIAL POPULATIONS

Adult Education

ED271110
Technology Transfer of a Reading Skill Improvement Program for the National Commission on Libraries and Information Science (NCLIS). Technology Transfer Report.
Duffy, Thomas; And Others
Dec 1985, 130p.
EDRS Price—MF01/PC06 Plus Postage.
Document Type: Research Report (143); Test, Questionnaire (160)
Target Audience: Policymakers
Major Descriptors: *Adult Basic Education; *Computer Assisted Instruction; *Literacy Education; *Microcomputers; *Reading Skills; *Technology Transfer
A program referred to as Language Skills Computer Assisted Instruction (LaSCAI) was chosen to assist volunteer tutors in improving the reading skills of adults. The program was demonstrated at two libraries—one rural and one urban—and an evaluation was completed to determine its applicability in enhancing the on-going tutoring programs at these sites. Prior evaluations had shown that LaSCAI does improve functional reading ability, so the main focus of the library demonstrations was to determine the value that the tutors and students placed on the LaSCAI program. The qualitative evaluations consisted of pre- and post-interviews with students and tutors to reveal their attitudes toward literacy, tutoring, computers, and the LaSCAI program in general. Results of this evaluation indicate that the program should be very successful when integrated properly into the adult literacy programs in current use in libraries. Specific conclusions are: (1) the LaSCAI program can be used to advantage in a library setting using microcomputers and volunteer tutors to raise the reading level and increase the literacy retention of adult students; (2) a certain amount of program modification, revision, and documentation is still required to extend this program to other libraries without extensive personnel support; and (3) a single source is needed to administer the application of this program for other libraries, to serve as a clearinghouse for subject matter prepared on disks, and to obtain resources and direct continuing research and development needed to improve and expand the use of the program.

ED279451
Computer Literacy and the Adult Learner.
Emery, Mary
Oct 1986, 14p. Paper presented at the Annual Conference of the National Rural and Small Schools Consortium (Bellingham, WA, October 7-10, 1986).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Project Description (141); Conference Paper(150)
Major Descriptors: *Adult Education; *Community Education; *Computer Literacy; *Computer Science Education; *Rural Areas
Begun in 1982, Rural Education Adult Development in Idaho (READI) intends to provide adult learners in rural areas with an opportunity to learn about computers in a way that is both interesting and relevant to their lives. During the 3-year pilot, the project developed and tested a curriculum, designed a method for training people to use the curriculum, and tested a community based delivery system. Curriculum was designed to include activities which foster self-esteem, encourage self-motivation, review basic skills, and enhance problem-solving and decision-making skills. Although READI was piloted through the Idaho Cooperative Extension Service, volunteer community advisory groups selected local peer teachers, organized logistics, and recruited participants. Community advisory committees were charged with developing a strategic vision of how technology will influence the area and implementing strategies for maximizing the positive impact of technological change. Over 600 rural adults enrolled in READI classes and an additional 250 participated in READI sponsored community computer expos. An estimated 40 K-12 teachers have READI materials in their classes, affecting approximately 2,000 students. Most people took the class to improve job prospects; computerize a small business, farm, or ranch; and/or become more knowledgeable about computers to understand what kids are doing in school.

ED279783
The ECIA Chapter I Computer Lab.
Hall, Sheila
[1986], 46p.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Non-classroom Material (055)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Assisted Instruction; *Computer Managed Instruction; *Correctional Education; *Language Arts; *Mathematics

This booklet provides information on and instructional materials from the Education Consolidation Improvement Act (ECIA) Chapter I Computer Lab at Sumter Correctional Institution in Florida. Section 1 is an introduction addressing the benefits of computer-assisted instruction, responsibility of inmate aides, and evaluation and selection of software. The next three sections focus on these three labs: Reading, Language Arts, and Mathematics. Section 2 on the Reading Laboratory presents an overview of the program, describes the software used for the various topics, lists software sources, and provides a sample student record, student report, and catalog page from the Easy-Reference Resource Catalog compiled for the lab. Section 3 on the Language Arts Laboratory contains an overview of the program and these sample pages: computer-assisted instruction (lists of software linked to minimum student performance standards) and inmate computer records. Titles and sources of software are also listed. Section 4 on the Mathematics Laboratory presents an overview of the program, lists objectives, provides samples of student assignment forms and class data forms, and lists software sources.

ED277338

Facilitating the Acquisition of Computer Skills for Adults: A Handbook of Findings and Recommendations.

Mruk, Christopher J.

[1984], 123p. Paper presented at the National Educational Computing Conference (6th, Dayton, OH, June 13-15, 1984).

EDRS Price—MF01/PC05 Plus Postage.

Document Type: Teaching Guide (052); Review Literature (070); Conference Paper (150)

Target Audience: Practitioners

Major Descriptors: *Adult Education; *Computer Literacy; *Learning Processes; *Nontraditional Students; *Psychological Studies

This handbook of research findings and practical suggestions is written for teachers, educators, and psychologists who are concerned about computer literacy for adults. Based on a federally funded research project, the handbook focuses on the computer needs of non-traditional adult learners over 25 years of age. The first section examines contemporary trends and problems of adult computer education. The second section deals with the psychology of the learning processes involved in acquiring basic computer skills, including methods for computer education research; computer literacy for adults; types of computer literacy for adults; the educational structure for teaching computer skills to adults; and adult learners and their individual differences. Factors impairing or facilitating the rate oflearning to use a computer for adults are also addressed. The third section includes a survey comparing the computer learning patterns of 55 adult learners with 55 traditional college students, and concludes with 18 suggestions for teaching, learning, and policy making concerned with computers and adults. A glossary of commonly used terms and references is included.

ED274880

Conference on Adult Literacy and Computers (Spring Hill, Minnesota, November 20-22, 1985).

Olson, Jean T., Ed.

[1985], 67p. Proceedings of a conference hosted by the Technology for Literacy Center, St. Paul, MN and organized by the Adult Literacy and Computers Advisory Committee.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Conference Proceedings (021); Project Description (141)

Major Descriptors: *Adult Basic Education; *Adult Literacy; *Computer Assisted Instruction; *Courseware; *Illiteracy

Materials from a conference on computer use in adult literacy programs are provided. Introductory materials include a history of the conference and the agenda. A summary of the keynote address, "Impact of New Information Technologies on Literacy" (Linda Roberts), is followed by a brief overview of the conference opening. Descriptions are provided of each participant and his or her program. The two following sections focus on the technical representatives and their observations on the issues discussions and the site visitation. Summaries are provided of the issues discussions. The six topics are quality software, low-level software (0-4 grades), technology, instructional effectiveness, management, and access. Each summary consists of a brief statement of the issue, a list of questions about the topic and its role in adult literacy which the moderator used to guide the discussion, a statement of goals and recommendations, and a summary of the notes and comments recorded during the session on flip charts by the moderators. Other contents include a brief note on a presentation on IBM's role in addressing adult literacy, a brief discussion of the use of Wilson Learning's Innovator (a computerized system customized for group needs), and a listing of participant comments regarding conference effects arranged in the following categories: individual-level effects, networking, efforts at research to support the field of adult literacy in general, and development of the field. A section on future directions is

also included. Additional resources include advisory committee, participant, and technical representative addresses; a listing and description of software used by participants; a reprint of an article on computer-assisted instruction; and a resource list.

ED280506
Literacy for Every Adult Project (LEAP). Report of Learning Center Component.
Pastori, Sharon; And Others
Sep 1986, 89p.
EDRS Price—MF01/PC04 Plus Postage.
Document Type: Evaluative Report (142); Project Description (141); Bibliography (131)
Target Audience: Media Staff; Practitioners
Major Descriptors: *Adult Basic Education; *Computer Assisted Instruction; *Computer Software; *Library Services; *Literacy Education; *Tutorial Programs

This review of the activities of LEAP (Literacy for Every Adult Project), a free, basic skills tutorial program for adults, is divided into two parts. Part 1 provides the most recent assessment of the LEAP microcomputer learning center, which was funded in 1985 through a Library Services and Construction Act grant, and Part 2 details the early activities of the center shortly after its opening in the spring of 1984. Topics discussed in Part 1 include the spring 1986, evaluation of the use of word processing and lesson plans for software programs, the value of incorporating computer aided instruction (CAI) in library-based literacy programs, requirements for a minimal program, and the expectations and realities of the LEAP learning center. Part 2 includes a discussion of the background and an evaluation of the project, a description of the LEAP learning center and its curriculum, a project summary and recommendations, and a 27-item bibliography. A sample lesson plan for use with software, interviews with LEAP learners, and a lengthy annotated bibliography of software programs used at the LEAP learning center are appended.

ED282083
Grammar Review: Your Tool for Success. Teacher Materials.
University of Pittsburgh (Johnstown)
[1986], 100p.
Available from: AdvancE, PDE Resource Center, Pennsylvania Department of Education, Harrisburg, PA 17126-003.
EDRS Price—MF01/PC04 Plus Postage.
Document Type: Teaching Guide (052)
Target Audience: Teachers; Practitioners
Major Descriptors: *Adult Basic Education; *Computer Assisted Instruction; *English Instruction; *Grammar

Teacher materials are provided for a computer-assisted English grammar curriculum for adult basic education students (1-8 grade level). They accompany a software program (diskette) that the student is able to use by himself/herself with the Apple IIc or Apple IIe computer with single or double drive and a monitor or a television with an R.F. modulator. A printed copy of the screen displays is included. The 17 lesson titles areas follows: The Basic Tool: The Sentence; A Closer Look at Subjects; More about Nouns: People, Places, and Things; Action Verbs; More about Verbs; Tenses; The Adjective; Review of Sentences, Nouns, Pronouns, Verbs, Adjectives; Another Useful Part of Speech: The Adverb; Prepositional Phrases; Basic Tools: Sentence Types; Some Good Advice: Subject-Verb Agreement; More Good Advice: Picking the Correct Pronoun; One Final Point: Pronoun-Antecedent Agreement; End Punctuation; Inside Punctuation; and Capitalization. Interactive text maximizes student involvement. Student responses are required frequently throughout the program, and based on the responses, the program branches out to meet each student's individual needs. Student responses include both narrative-type input as well as standardized test-like items. A copy of the print student exercises and an accompanying answer key are also provided.

ED272679
A Differential Feature-Cost Analysis of DISCOVER for Adult Learners and SIGI PLUS: Technical Report Number 4.
Sampson, James P., Jr.; And Others
Mar 1986, 19p. Funds provided through Project LEARN.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Research Report (143)
Major Descriptors: *Adult Students; *Career Guidance; *Computer Oriented Programs; *Computer Software; *Cost Effectiveness

DISCOVER for Adult Learners (DISCOVER AL) and SIGI PLUS are recently developed computer-assisted guidance systems designed to assist individuals in making career decisions. This technical report highlights similarities and differences between the two computer-assisted guidance systems so that service providers may

make informed choices concerning the adoption of such systems. The following features were compared: (1) user friendliness (human factors), (2) information for career decision making, (3) decision processes on which programs are based, (4) support materials, (5) differential cost analysis, and (6) limitations. The bulk of the report consists of tables that compare the two systems on these six factors and sub-elements of them. The information about the systems was gathered from the manuals provided by the respective firms (American College Testing Program and Educational Testing Service) that market them, interviews with the firms'staff members, and the collective experiences of the authors as they and their clients interacted with the systems. Cost estimates for the two systems are given, but no conclusions about the relative superiority of either of the systems are offered.

ED275869
The Comprehensive Competencies Program: A Summary.
Taggart, Robert
Jul 1986, 52p. For the related reference manual, see ED 273 747.
EDRS Price—MF01/PC03 Plus Postage.
Document Type: Project Description (141); Statistical Material(110)
Major Descriptors: *Adult Education; *Basic Skills; *Competency Based Education; *Computer Managed Instruction; *Individualized Instruction; *Training Methods

The Comprehensive Competencies Program (CCP) is intended for use in delivering individualized, competency-based instruction in such diverse settings as community-based organizations, schools, corrections facilities, and job training programs. The learning system covers academic competencies ranging from elementary reading and arithmetic through high school and introductory college-level science, mathematics, humanities, social studies, and writing. It also addresses such functional competencies as job-getting and job-holding skills, consumer skills, citizenship, and health and community participation. CCP is based on a hierarchical framework of competency objectives organized into academic and functional components and includes 750 mastery tests to diagnose learner needs and track competency attainment. The program also features an information system that gathers all the information needed for individual education planning and tracking, management of instructional activities, and evaluation, as well as five computer systems to automate test scoring, teaching, record keeping, reporting, managing, and computer networking. The CCP users network links practitioners through quarterly user bulletins, surveys, and updates. CCP has been used effectively in diverse institutions ranging from adult basic education institutions to settings that can be described as high-tech one- room schoolhouses. (Thirty-three tables describing the outcomes and effectiveness of CCP are appended.)

ED280453
The Use of Computer-Managed Learning for Media-Based Informal Adult Learning.
Waniewicz, Ignacy
Feb 1984, 37p. United Nations Educational, Scientific, and Cultural Organization, Paris (France). (Appendixes contain some faint/broken type.)
EDRS Price—MF01 Plus Postage. PC not available from EDRS.
Document Type: Project Description (141)
Major Descriptors: *Computer Managed Instruction; *Educational Television

TVOntario, the television network operated by the Ontario Educational Communications Authority, has been utilizing computer managed learning (CML) in its support of television-based nonformal adult learning projects since 1980. Three of these projects, or academies, have been offered on the topics of health and environment, music and musicians, and parenting. Each of these academies consists of high-quality television programs, specially designed print materials, and the computer managed learning system known as RSVP (Response System with Variable Prescriptions). These three elements in combination allow adults to undertake the academies as self-directed learning projects geared to their level of need. The RSVP system encompasses nine computer programs offering both instructional and management services, which include scoring learners' responses to individualized feedback on their performance, assessment of their comprehension, and diagnosis of learner difficulties. TVOntario makes a major contribution to formal education by cooperating with and supporting the teaching programs and curricula of schools, colleges, and universities in the province. The network also provides educational services to the general public, and conducts needs assessment studies geared to improving the quality and utilization of its programs and fulfilling its mandate to use electronic and associated media to provide educational opportunities for all people in Ontario. Outlines of the three programs noted above are appended.

ED282082
Evaluation of Microcomputer Software for ABE/GED Basic Skills Instruction.
Williams, Maureen S., Comp.
[1986], 41p.
EDRS Price—MF01/PC02 Plus Postage.

Document Type: Directory (132); Evaluative Report (142)
Target Audience: Teachers; Practitioners
Major Descriptors: *Adult Basic Education; *Computer Assisted Instruction; *Computer Software Reviews; *Courseware; *High School Equivalency Programs

This booklet presents a comprehensive list of microcomputer software, along with evaluations, that may be beneficial to others seeking assistance in initiating a resource center for computer assisted instruction. A summary of the project that developed this listing appears first. The software bibliography is arranged according to instructional areas. Materials in each area are listed alphabetically by title. The company, cost, instructional level, description, and evaluation are given for each piece of software. The upper right-hand corner of each evaluation contains a one-word overall evaluation: poor, fair, good, and excellent. Content areas include career development, computer literacy and tool, language arts, science, and social studies. Evaluations are based on how effectively each piece of software would aid an adult learner seeking the Graduate Equivalency Diploma. Addresses of software publishers are appended.

Disabled Learners

ED277167
Existing and Emerging Technologies in Education: A Descriptive Overview. CREATE Monograph Series.
Bakke, Thomas W.
1984, 39p. For other monographs in this series, see ED 277 166-171.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Review Literature (070); Project Description (141)
Target Audience: Administrators; Practitioners
Major Descriptors: *Computer Assisted Instruction; *Computer Networks; *Educational Technology; *Information Technology; *Learning Disabilities

Second in a series of six monographs on the use of new technologies in the instruction of learning disabled students, the paper offers a descriptive overview of new technologies. Topics addressed include the following: (1) techniques for sharing computer resources (including aspects of networking, sharing information through databases, and the use of electronic bulletin boards and computer conferencing); (2) barriers to centralized information retrieval; (3) instructional uses of videodiscs; (4) videotex application; (5) intelligent computer assisted instruction; (6) the use of peripherals to enhance instruction (including speech synthesis, speech recognition, and nonvocal communication); and (7) computer resource centers. The monograph concludes with a discussion of current barriers to the effective use of technology in the schools.

ED277170
Optimal Approaches to Microcomputer Implementation in the Schools. CREATE Monograph Series.
Bakke, Thomas W.
1984, 37p. For other monographs in this series, see ED 277 166-171.
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Project Description (141)
Target Audience: Administrators; Practitioners
Major Descriptors: *Computer Assisted Instruction; *Educational Technology; *Learning Disabilities; *Microcomputers; *Planning; *Staff Development

Fifth in a series of six monographs on the use of new technologies in the instruction of learning disabled students, the paper describes how schools can plan for the acquisition of computer hardware and software, and how they can provide district-level staff training in its use. Discussion focuses on the development of a technology implementation plan and on a critical analysis of the three major components of a school-based computer approach: hardware, software, and training. Topics addressed include current approaches to technology implementation, components of the planning process (Board of Education, district planning committee, and key persons at the local level), and key issues and decisions (e.g., centralized or decentralized decision-making, short- or long-term plans). Issues related to training and staff development are also discussed; these include encouraging teacher participation, content of inservice programs, and designing effective training. Aspects of hardware selection (stand-alone and network systems) are addressed next. The monograph concludes with a discussion of issues associated with software selection (acquisition of courseware libraries, delivery systems, and local courseware production).

ED283307
Communication, Control, and Computer Access for Disabled and Elderly Individuals. Resource Book 3: Software and Hardware. Rehab/Education Technology ResourceBook Series.
Brandenburg, Sara A., Ed.; Vanderheiden, Gregg C., Ed.

1987, 502p. For *ResourceBooks 1* and 2, see ED 283 305-306.

Available From: Trace Research and Development Center, S-151 Waisman Center, 1500 Highland Ave., Madison, WI 53705-2280.

EDRS Price—MF02/PC21 Plus Postage.

Document Type: Directory (132)

Target Audience: Practitioners

Major Descriptors: *Accessibility (for Disabled); *Computers; *Computer Software; *Disabilities; *Electronic Equipment

One of a series of three resource guides concerned with communication, control, and computer access for the disabled or the elderly, this book focuses on hardware and software. The guide's 13 chapters each cover products with the same primary function. Cross reference indexes allow access to listings of products by function, input/output feature, and computer model. Switches are listed separately by input/output features. Typically provided for each product are usually an illustration, the product name, vendor, size, weight, power source, connector type, cost, and a description. Part I, "Computer Adaptations," presents the following types of items: modifications for standard keyboards; alternate inputs usable with all software; input devices usable with only some software; input adapters for computers; alternate display systems usable with all software; Braille printers and tactile display components; speech synthesizers; and other software and hardware adaptations. Part II, "Application Software for Special Ed and Rehab," includes software for administration and management; assessment; education, training, and therapy; recreation; and personal tools or aids. Appendixes include a list of additional sources of information, a glossary, addresses of manufacturers listed with their products, and an alphabetical listing of all products in the 3-book series.

ED273062

A New Instructional Technology to Enhance Transition from School to Community for Mildly Handicapped Individuals. Final Report.

Browning, Philip

[1985], 51p. For the interactive video development manual, see ED 263 893.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Research Report (143)

Major Descriptors: *Computer Assisted Instruction; *Education Work Relationship; *Mild Disabilities

The first goal of this research project was to demonstrate the use of computer assisted video instruction (CAVI) for teaching mildly handicapped students school to community transition skills. Two CAVI learning modules were developed on asking for help and budgeting. The first includes eight lessons focusing on questions of why, when, who, what, and how. Students have five different types of possible response modes: (1) answer sheets, (2) keyboard decision, (3) discussion, (4) verbal rehearsal, and (5) behavioral rehearsal. The second module was tutorial in nature and was based on items selected from the Social and Prevocational Information Test. The second goal of the project was to evaluate the two modules. Studies undertaken to determine the effects of different types of informational feedback on learning performance and the effectiveness of the Asking for Help Curriculum are described. The third goal of the project was to increase the utility of CAVI through products such as the Interactive Video Development Manual, sample pages of which are reproduced in this document.

ED281333

Cognitive and Communicative Development in Severely Physically Handicapped Non-Speaking Children.

Buzolich, Marilyn Jean

Sep 1986, 28p. Paper presented at the International Conference on Augmentative and Alternative Communication (4th, Cardiff, Wales, September 22-24, 1986.)

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Project Description (141); Conference Paper (150)

Major Descriptors: *Cerebral Palsy; *Cognitive Development; *Computer Oriented Programs; *Language Acquisition; *Perceptual Motor Learning; *Physical Disabilities

The paper discusses the use of computer technology with severely physically disabled children to facilitate sensory-motor development and enable acquisition of the cognitive prerequisites for augmentative communication. Following a discussion of theoretical perspectives on communicative and cognitive development, the characteristics of children selected for training are described, specific objectives of motor training enumerated, and observed motor responses defined. Elements of training are discussed within the framework of the following goals: (1) train child to activate a single switch voluntarily and reliably; (2) facilitate perceptual motor development in order to train the child to use the newly acquired motor response to respond to sensory input; (3) facilitate receptive language development; (4) facilitate expressive language development; and (5) develop a communication system using a visually directed scanning approach. Related suggestions for classroom implementation include a non distracting environment, individual instruction, and social integration with

nonhandicapped peers through the use of peer tutors. Application of this training approach with a 9-year-old boy with severe cerebral palsy is described.

ED282365

Computer Aided Self-Instruction Training with Impulsive Deaf Students and Learning Disabled Students: A Study on Teaching Reflective Thought. Education and Technology Series.

Campbell, Donald S.; And Others

1986, 91p.

Available From: Publications Sales, The Ontario Institute for Studies in Education, 252 Bloor St. West, Toronto, Ontario, Canada M5S 1V6.

EDRS Price—MF01/PC04 Plus Postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Aphasia; *Computer Assisted Instruction; *Conceptual Tempo; *Deafness; *Problem Solving; *Programing

Two studies examined the effectiveness of self-instruction training via a specially developed computer program to modify the impulsive problem-solving behavior of 16 deaf and 10 learning disabled (aphasic) adolescents attending two special residential schools in Canada. In the control condition, students learned the Apple LOGO computing language and practiced problem solving on the computer. In the treatment condition, students were given the same exercises, but in addition given self-instruction training using the "REFLECT" computer program which was designed to elicit overt verbalization of thinking behavior and teach reflective problem-solving strategies. Deaf students participated for 12 weeks, aphasic students for 6 weeks. In the study with deaf students, group comparisons of dependent measures showed significant improvement in the treatment group on errors, global measures of impulsivity, and errors on the Matching Familiar Figures Test. An ordinal aptitude x treatment interaction was noted as was a trend toward transfer as measured by the self-control rating scale. In the shorter study with aphasic students, there was significant improvement in judges' evaluations of global characteristics of impulsivity. Other measures suggested the treatment group became more effective with the LOGO language than the control group.

ED273241

Implementing Equal Access Computer Labs.

Clinton, Janeen; And Others

1986, 95p.; Paper presented at the Florida Instructional Computing Conference (Orlando, FL, January 1986).

EDRS Price—MF01/PC04 Plus Postage.

Document Type: Non-classroom Material (055); Project Description (141); Conference Paper (150)

Target Audience: Practitioners

Major Descriptors: *Computer Literacy; *Courseware; *Disabilities; *Input Output Devices; *Microcomputers; *Special Education

This paper discusses the philosophy followed in Palm Beach County to adapt computer literacy curriculum, hardware, and software to meet the needs of all children. The Department of Exceptional Student Education and the Department of Instructional Computing Services cooperated in planning strategies and coordinating efforts to implement equal access computer labs. The handout summarizes Palm Beach County's position on computer literacy for all students; summarizes the need to adapt the Palm Beach County Unified Curriculum for Computer Literacy for the different exceptionalities; provides guidelines for establishing criteria and systematic observation of students who may require adaptive devices; and provides a list of suggested hardware to place in an equal access lab with cost analysis comparisons and a partial list of suggested software to teach computer literacy to students in exceptional student education programs. Appended materials include a listing of adaptive peripheral devices for computers; a listing of Florida Instructional Technology Resource Centers; a list of applied technology resources; a selected ERIC bibliography; and a guide to special education technology prepared by Bob Reid and Diane Herrera Shepard, at the Developmental Center for Handicapped Persons, Utah State University.

ED280260

The Trine Project Final Report.

Gunderson, Jon R.; And Others

May 1986, 72p. A product of the Trace Research and Development Center on Communication, Control, and Computer Access for Handicapped Individuals. For related documents, see ED 280 257-261. Appendix H contains small/marginally legible print.

Available From: Trace Research and Development Center, S-151 Waisman Center, 1500 Highland Ave., Madison, WI 53705 ($10.10).

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Project Description (141)

Major Descriptors: *Communication Aids (for Disabled); *Computer Software; *Disabilities; *Educational Needs; *Microcomputers

The final report describes the Trine Project which addressed three needs in the education of handicapped children: the need for an alternate writing system, the need for communication, and the need for access to general purpose computers used in the schools. The project had three major objectives: (1) to design a low-cost portable writing and computer access aid using existing technology, (2) to provide alternative communication integrated with writing and computer access; and (3) to provide a tutorial manual that allows naive users to learn the system. The project resulted in a special computer program which turns the Epson HX-20 general purpose computer into a dedicated writing, conversation, and computer access aid with a structured tutorial manual. Results of field testing with 13 users and 6 consultants indicated that the Trine System can be learned effectively from the guidebook and that it can meet basic communication and writing needs of persons in educational settings. A nonexclusive marketing plan (in which a limited number of organizations have the right to produce and sell the system) was used and the Trine System is now available through two commercial companies. Among appendixes are product brochures, a conference paper on the design and testing of a tutorial manual, several questionnaires on system use and evaluation, and a manual critique.

ED276237

Interactive-Observation in Communicative Disorders.

Hall, Ed; Harris, Ruth

1986, 16p. In: Murphy, Harry J., and Dunnigan, J. A., Eds. *Computer Technology and Persons with Disabilities: Proceedings of the Conference (Northridge, California, October 17-19, 1985)*; see ED 276 233.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Project Description (141); Conference Paper (150)

Major Descriptors: *Communication Disorders; *Computer Assisted Instruction; *Interactive Video; *Teaching Methods; *Training Methods; *Videotape Recordings

Through interactive-observation, the strengths of the video recorder (actual viewing experience) and the strengths of the computer (capability for feedback, record keeping, and problem analysis) can be combined and used in the preparation of personnel to educate handicapped children and youth. In the area of communicative disorders, accurate videotape portrayals of speech-language and hearing problems could readily be transported from special rehabilitative sites to training facilities to familiarize educational personnel with the nature of a given disability and strategies for classroom management. In interactive-observation, a computer is connected through special hardware and software to a video player, and the computer controls the tape presented by the video system depending on the viewer's responses to the lesson programmed into the computer. Benefits of interactive-observation to the trainees include: more available information; rapid access to information; individualized instruction; increased motivation; increased attention span; and more immediate feedback. Benefits to the training institution include: more efficient inservicing; uniformity of information; better organization and control of training information; and a greater capacity to provide information to trainees and teachers. This paper describes this innovative teaching system, and includes some basic information on the type and cost of equipment (both hardware and software) necessary to run an interactive-observation learning center.

ED280245

The Impact of Microcomputer Instruction on Handicapped Students: Second Year Findings.

Harckham, Laura D.

Apr 1986, 10p. Paper presented at the Annual Convention of the Council for Exceptional Children (64th, New Orleans, LA, March 31-April 4, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Disabilities; *Educational Methods; *Instructional Effectiveness; *Microcomputers; *Programing

This final report presents a summary and second-year findings of a 2-year project designed to measure the effectiveness of microcomputer instruction on reading and mathematics skills, classroom behavior, general cognitive development, and problem-solving ability of 700 disabled students (ages 3-11) enrolled in four special education schools in New York State. Subjects were exposed to one of three treatment conditions (teacher-directed learning, instructional software, and LOGO) for three 30-minute periods per week over seven months. Analysis of pretest and posttest measures indicated that computer instruction, in the form of either LOGO or instructional software treatments, produced no significant effects related to the behavior, achievement, problem-solving ability, or general cognitive ability of handicapped students.

ED276238

Teaming the Classroom Computer with a Textbook for Teaching Phonics to Hearing-Impaired Students.

Hart-Davis, Sandra

1986, 31p. In: Murphy, Harry J., and Dunnigan, J. A., Eds. *Computer Technology and Persons with Disabilities: Proceedings of the Conference (Northridge, California, October 17-19, 1985)*; see ED 276 233.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Conference Paper (150); Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Computer Assisted Instruction; *Hearing Impairments; *Phonics; *Textbooks

The paper describes an approach to teaching phonics to hearing impaired 12-15 year olds through a microcomputer. Under the guidance of a teacher, a standard phonics textbook is paired with phonetic and phonologic practice on the computer. Students proceed through the materials at their own pace. Three phases of learning are featured: (1) exposure to words via pictures from the textbook; (2) participation in computer exercises; and (3) interaction with specially designed crossword puzzles designed to reinforce proper spelling, contextual meaning, word association, and recall. Step by step procedures are described and computer screens pictured. Benefits of the approach, such as increased interest and learning pace, are noted.

ED284402

Artificial Intelligence Applications in Special Education: How Feasible? Final Report.

Hofmeister, Alan M.; Ferrara, Joseph M.

Jun 1986, 153p. For related document, see ED 284 403.

EDRS Price—MF01/PC07 Plus Postage.

Document Type: Research Report (143); Evaluative Report (142)

Major Descriptors: *Artificial Intelligence; *Computer Uses in Education; *Disabilities; *Expert Systems; *Handicap Identification; *Special Education

The research project investigated whether expert system tools have become sophisticated enough to be applied efficiently to problems in special education. (Expert systems are a development of artificial intelligence that combines the computer's capacity for storing specialized knowledge with a general set of rules intended to replicate the decision-making process of a human expert.) To assess the feasibility of the technology, a series of prototypes was developed, in which a range of expert system development software tools and hardware systems was used. These prototype systems, which sampled administrative assessment and instructional problems, addressed: (1) classification of students as learning disabled; (2) classification of students as behaviorally disturbed; (3) classification of students as intellectually handicapped; (4) classification of students as having articulation problems requiring special education; (5) advice to teachers planning specific procedures to deal with behavior problems (Behavior Consultant); and (6) development of a second opinion of the appropriateness of the decision-making process used in the development of Individualized Education Programs (Mandate Consultant). Additional data are presented on the two prototypes that were taken through more extensive development and field testing. It was concluded that a need for the technology exists in special education and that it is possible to develop practical expert systems with the tools and research and development resources presently available. Nine appendixes comprising the bulk of the document are concerned with expert systems in relation to such topics as: (1) individual education program planning; (2) diagnosing, classifying, and treating learning disabled students; and (3) evaluating the development of such systems in education.

ED284403

Assessing the Accuracy of a Knowledge-Based System: Special Education Regulations & Procedures. Final Report.

Hofmeister, Alan M.

1986, 242p. For related document, see ED 284 402. Some charts in appendices contain small print and will not reproduce well.

EDRS Price—MF01/PC10 Plus Postage.

Document Type: Research Report (143); Evaluative Report (142)

Major Descriptors: *Artificial Intelligence; *Computer Uses in Education; *Disabilities; *Expert Systems; *Individualized Education Programs; *Special Education

The purpose of this research project was the development and initial validation of Mandate Consultant, an expert system that provides a second opinion of the appropriateness of the decision-making process used in the development of Individualized Education Programs with handicapped children. (Expert systems are a development of artificial intelligence that combines the computer's capacity for storing specialized knowledge with a general set of rules intended to replicate the decision-making process of a human expert.) This expert system was designed as a tool for administrators of special education programs. The project utilized a four-stage product development approach: (1) product definition; (2) product design; (3) prototype development; and (4) validation of product performance. The validation consisted of a summative evaluation designed

to assess whether the expert system accurately emulated the knowledge of experienced educators. It was found that conclusions produced by consultations using Mandate Consultant generally matched the conclusions of the "better" human experts and exceeded the conclusions of the majority of human experts. Thirty-five appendixes comprising more than half the document describe the work of all four phases of the development of Mandate Consultant.

ED276239

Integrating Computer Technology with Severely Handicapped and Learning Handicapped Students.

Kleitman, Richard; And Others

1986, 13p. In: Murphy, Harry J., and Dunnigan, J. A., Eds. *Computer Technology and Persons with Disabilities: Proceedings of the Conference (Northridge, California, October 17-19, 1985);* see ED 276 233.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Project Description (141); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Emotional Disturbances; *Language Arts; *Learning Disabilities; *Severe Disabilities

The paper describes and evaluates the use of computer instruction with three student populations: severely handicapped, severely emotionally handicapped, and learning handicapped. In the first instance, instruction was aimed at helping severely handicapped students operate software as independently as possible. Important steps in the instructional process are noted, including the use of practice "on line" time and teacher supervision. Teacher inservice time is needed to master the operations. Instruction of learning and emotionally handicapped students used language arts software and focused on teaching students to use the features of the Bank Street word processor. Among benefits noted are increased creativity and improved quality of writing. A list of skills, strategies, and software options to instruct students in basic computer operation concludes the paper.

ED276240

Miss STIM: An Extra-Interactive Electronic Learning System.

Knoppel, Curt; And Others

1986, 15p. In: Murphy, Harry J., and Dunnigan, J. A., Eds. *Computer Technology and Persons with Disabilities: Proceedings of the Conference (Northridge, California, October 17-19, 1985);* see ED 276 233.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Conference Paper (150); Project Description (141)

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Severe Disabilities; *Videodisks

The paper describes Miss STIM, an electronic teaching aid designed to increase the computer's educational potential for severely handicapped students. The aid incorporates both video images and audio signals and is programed to present lesson material in conjunction with responses from the student. System operation is described in terms of stimulus generators, student response recorders, video monitors, and computerized control devices. The student's physical responses are recorded on videotape for the instructor's use. The educational material is presented by means of disks performing three functions: coordination of different electronic components, control of audio/video images from the videodisc players to the monitors, and data storage for individual student files following completion of a lesson. Versatility of the unit is stressed, and new programs under development are described. Appended materials list the main computer program menus and sub-menus and briefly describe a series of educational materials scheduled for release in 1986-87.

ED276233

Computer Technology and Persons with Disabilities: Proceedings of the Conference (Northridge, California, October 17-19, 1985).

Murphy, Harry J. Ed.; Dunnigan, J. .A., Ed.

1986, 335p. For selected individual papers, see ED 276 234-243.

Available from: California State University, Northridge, Office of Disabled Student Services, 18111 Nordhoff St., Northridge, CA 91330 ($12.95; California residents enclose $13.79).

EDRS Price—MF01/PC14 Plus Postage.

Document Type: Conference Proceedings (021)

Major Descriptors: *Communication Aids (for Disabled); *Computer Assisted Instruction; *Computer Software; *Disabilities; *Microcomputers

Twenty-seven papers are presented from a conference on applications of computer technology for disabled persons. The following titles and authors are represented: "Computer Applications For Rehabilitation Organizations: Finding What You Need" (T. Backer); "Similarities In Cognitive Development of Severely Physically Handicapped and Younger Regular Students" (S. Ball); "Telecommunications for The Physically Handicapped" (P. Cunningham and J. Gose); "Very Low Cost Applications of Talking Bar Code Technology Combined with Pictorial and Alphabetic Language Symbols" (J. Curran); "Strategies To Promote Integration

and Acceptance of Students with Disabilities among Their Non-Disabled Peers, Using Microcomputers" (D. Dutton); "Speech Synthesis as a Teaching Tool" (F. Fisher); "The Use of Microcomputers in Program Evaluation" (C. Fitzpatrick); "Dexter: A 'Talking' Hand for The Deaf-Blind" (D. Gilden); "No Monitor or Keyboard Needed for Computerized Educational Devices for Blind Children" (D. Gilden); "Interactive-Observation in Communicative Disorders" (E. Hall et al.); "Teaming The Classroom Computer with a Textbook for Teaching Phonics to Hearing-Impaired Students" (S. Hart-Davis); "Alternative Access Methods for Users of Computer-Based Information Systems" (D. Jaffe); "Integrating Computer Technology with Severely HandicappedAnd Learning Handicapped Students" (R. Kleitman et al.); "Miss STIM: An Extra-Interactive Electronic Learning System" (C. Knoppel et al.); "A Keyboard Emulator for the IBM PC" (R. Lodewyck); "RADIO ACTIVE: A Microcomputer-Based Radio Access System for the Severely Physically Handicapped" (R. Lodewyck); "Creative Uses of Synthetic Speech for the Hearing Impaired" (S. Longacre); "High Tech for Multihandicapped Individuals" (S. Longacre); "APL: A Language To Assist Disabled People" (D. McIntyre and R. McIntyre); "Computerized Symbol Processing for Handicapped Persons" (R. Osguthorpe et al.); "Making Apple Computers Accessible to Blind Children" (A. Renouf and S. Phillips); "Computer-Assisted Fitting of an Implanted Cochlear Prosthesis" (J. Sinclair et al.); "Computer Technology for Communicatively Handicapped Pupils in Public Schools" (D. Soroky et al.); "Visagraph Eye-Movement Recording System" (B. Talluto); "The PortaBraille—A Communication Device for the Blind" (W. Thompson); "Computer Applications in Deaf Education" (R. Trachtenberg); "The Integration of Logic Software into the Curriculum through Activities away from the Computer" (L. Ware).

ED277171

Promoting Use of Technology in the Schools: An Organizational Analysis of California's Teacher Education and Computer Centers. CREATE Monograph Series.

Rossi, Robert; And Others

1985, 57p. For other monographs in this series, see ED 277 166-170.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Review Literature (070); Project Description (141)

Target Audience: Administrators; Practitioners

Major Descriptors: *Computer Assisted Instruction; *Computer Uses in Education; *Cooperative Planning; *Educational Technology; *Learning Disabilities; *Staff Development

Sixth and last in a monograph series on the use of computer technology in the instruction of learning disabled students, this paper analyzes the California Teacher Education and Computer Centers (TECC) program. Five themes influencing the TECC program are identified for discussion: staff development, teacher incentives, local policymaking authority, regional networking, and cooperative planning. Technology as a high-demand area for staff development in various computer skills areas and as a motivational device for staff development in other, more traditional areas is also discussed. Finally, the paper cites implications of the TECC program for the use of computers in schools. Appendices, which comprise the bulk of the document, consist of the "Introduction" and "Executive Summary" from the *Report on the 1983-84 Evaluation of the Teacher Education and Computer Centers*, published in 1985 by the California Department of Education, a transcript of the authorizing legislation for the TECC, and a paper on the TECC's organizational relationships.

ED277168

The Learning Disabled and Computer Based Education: Program Design Strategies. CREATE Monograph Series.

Rubin, David; And Others

1984, 33p. For the other monographs in this series, see ED 277 166-171.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Project Description (141)

Major Descriptors: *Computer Assisted Instruction; *Educational Technology; *Instructional Design; *Learning Disabilities; *Material Development

Third in a series of six monographs on the use of new technologies in the instruction of learning disabled students, the paper explores program design strategies for computer-based instructional materials. Section 1 summarizes ideas related to models of perception and cognition, theories of instruction, and key characteristics of intelligent technologies. Section 2 analyzes the instructional effectiveness of two specific pieces of effective educational software ("Mastertype" and "Spelling Bee Games") in terms of the ideas developed in Section 1. A final section discusses implications of these ideas for future research on the design of computer-based instruction.

ED273801

Training and Technology for the Disabled. Discovery III Conference Papers (Milwaukee, Wisconsin, March 10-12, 1986).

Smith, Christopher, Ed.

1986, 131p.

Available from: Materials Development Center, Stout Vocational Rehabilitation Institute, Menomonie, WI 54751 ($17.00).

EDRS Price—MF01 Plus Postage. PC not available from EDRS.

Document Type: Conference Proceedings (021); Research Report (143); Project Description (141)

Major Descriptors: *Computer Oriented Programs; *Computers; *Disabilities; *Technological Advancement; *Vocational Evaluation; *Vocational Rehabilitation

Thirty-three papers are presented from a conference on the application of technology for use in the rehabilitation field. Presentations include "Technology—Opening Doors for Disabled People" (Rochlin, Bowe); "Management Information Systems Development for Rehabilitation Facilities: Critical Factors in Development and Implementation" (Robbins, et al.); "Technology for Children with Disabilities in Connecticut" (Rucker, Gillung); "Microcomputer Education for Employment of the Disabled (MEED): Discovering Microcomputer Careers" (Layton, Yourist); "Teaming the Classroom Computer with a Textbook for Teaching Phonics to the Hearing Impaired" (Hart-Davis); "The Student in the Thicket: Providing World of Work Experiences in an On-the-job Training Setting" (Hoppe); "A Study of Educational Computer Applications for Disabled Children under 36 Months" (Ellingson, Treptow); "Disabled Access to Technological Advances" (Houston, Cress); "Bridging the Technological Gap" (Musante, et al.); "The Use of Computers in Vocational Assessment" (Tango, Reber); "Parents and Teachers Can Use Peripherals: A Training Perspective" (Hutinger); "Training Teachers To Use Microcomputers: A Consultant Approach" (Keefe); "Technology and Training Eligibility: The 'Fuzzy' Logic Approach to Computerized Vocational Choice" (Williamson); "Computer Speech Recognition for Vocational Training: Strategies and Observations" (Grooms); "Use of Computers for Cognitive Rehabilitation" (Wamboldt, et al.); "The Challenge and the Promise of Computer Access in the 21st Century" (Sloane); "Using LOGO and BASIC with Mildly and Moderately Handicapped Children" (Jolly); "Integrating Vocational Rehabilitation Operations through Automation" (Glass, et al.); "The Other Side of the Disk" (Krasnow, Floyd); "Clothing for Independent Living" (Albrecht, Habdas); "Innovative Software for Cognitive Rehabilitation" (Criter); "Developing Effective Rehabilitation Training Curriculums in Light of Current Technological and Socioeconomic Trends" (Smith); "Choosing Appropriate Input Mode/Device for the Pediatric Client" (Vargas); "Communicate To Educate" (Joseph); "Adapting an Information Desk Job Setting for the Visually-Impaired" (Black); "The Implementation of Computer Technology in a Special Education/Clinical Setting" (Lashway); "AppleWorks for the Special Education Teacher" (Paulson); "Vocational Evaluation Upgrade Program" (Traver); "Vocational Rehabilitation Engineering—What Is It?" (Anderson, Ross); "Personal Computer Assisted Vocational Evaluation (P-Cave)" (Tuck); "Introduction to Microprocessing and Academic Strategies for Developmental-Level College Students" (Griffey); "NU-VUE-CUE: Verbal Eyes Verbalize" (Clark); and "Integrating Assistive Device Machine-Readable Databases with Design, Fabrication, and Testing of Devices and Components for Successful Work Adjustment" (Shafer). Author, title, and topic indexes are provided.

ED278209

Neuropsychological Assessment and Training of Cognitive Processing Strategies for Reading Recognition and Comprehension: A Computer Assisted Program for Learning Disabled Students. Final Report.

Teeter, Phyllis Anne; Smith, Philip L.

[1986], 12p.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Project Description (141)

Major Descriptors: *Computer Assisted Instruction; *Computer Assisted Testing; *Material Development; *Reading Difficulties

The final report of the 2-year project describes the development and validation of microcomputer software to help assess reading disabled elementary grade children and to provide basic reading instruction. Accomplishments of the first year included: design of the STAR Neuro-Cognitive Assessment Program which includes a reproduction of paired-letters task, a word sorting task, a verbal interference task, and a spatial-interference task; conduct of a study to determine if subclassifications of reading disabled students utilize different cognitive strategies for processing information for verbal and non-verbal tasks; and determination of the validity of the STAR Assessment Program (in comparison to the Kaufman Assessment Battery for Children). The major second year accomplishment was development of the STAR Neuro-Cognitive Reading Program for grades 3 and 4 consisting of three separate approaches reflecting distinct cognitive processing strategies (simultaneous processing, sequential processing, and traditional processing). The program provides 30 lessons at each of the two grades for each of the three cognitive strategies. Validation of the reading program was not accomplished due to too few subjects.

ED276243

Computer Applications in Deaf Education.

Trachtenberg, Renee

1986, 14p.; In: Murphy, Harry J., Ed.; Dunnigan, J. A., Ed. *Computer Technology and Persons with Disabilities: Proceedings of the Conference (Northridge, California, October 17-19, 1985)*; see ED 276 233.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Conference Paper (150); Non-classroom Material (055)

Target Audience: Practitioners

Major Descriptors: *Computer Assisted Instruction; *Deafness; *Microcomputers

The paper examines applications of computers in deaf education, noting three major functional areas: (1) the computer as a tutor; (2) the computer as a tool; and (3) the computer as a tutee. Software in the tutor mode (computer assisted instruction) is reviewed, and the need for software in the language arts area is noted. Computer applications that bridge the tutor and tutee modes (including authoring systems and programing languages) are also noted. Computer tools include word processing and database programs, which may be incorporated into science or social studies curricula. The special appropriateness of LOGO for hearing impaired children is also described. Microcomputers should be viewed as technological instruments that expand a student's intellectual environment.

ED280257

White Paper: Access to Standard Computers, Software, and Information Systems by Persons with Disabilities. Revised, Version 2.0.

Vanderheiden, Gregg C.

27 Oct 1985, 54p. For related documents, see ED 280 258-261.

Available from: Trace Research and Development Center, S-151 Waisman Center, 1500 Highland Ave., Madison, WI 53705 ($7.30).

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Position Paper (120); Review Literature (070)

Target Audience: Community

Major Descriptors: *Accessibility (for Disabled); *Computers; *Computer Software; *Disabilities; *Input Output Devices; *Microcomputers

The paper focuses on low cost and no cost methods to allow access and use (via specialized interface and display aids) by the disabled of standard unmodified computers and of microcomputer software systems becoming increasingly common in daily life. First, relevant characteristics of persons with movement, sensory, hearing, or cognitive disabilities are listed and related strategies for solution are described (e.g., use of alternate input approaches for the movement impaired, voice output for the visually impaired). The next section looks at ways existing computers could be made more accessible through such means as keyboard options, an alternate keyboard access feature in operating systems, visual redundancy of auditory information, and availability of an audio or headphone signal. Ways in which these access modifications can increase the usefulness of computers for the disabled (and market size for manufacturers) are pointed out. Possible ways that future computer accessibility for the disabled may evolve are noted and include increased availability of alternate interfaces, separation of programs from the input/output hardware, greater difficulty for the visually impaired as the visual complexity of displays increases, and increased use of voice-to-text translators by the hearing impaired. Attached are a position paper and a proceedings report pertaining to two computer industry/government meetings held in February 1984 and October 1985 with the purpose of formally addressing the problem of computer accessibility for the handicapped.

ED270909

Training of Trainers: Leadership Training for Administrators of Special Education in Emerging Technology.

Vasquez, Mary Britt; And Others

Nov 1985, 301p. Presentation at the Annual Convention of the Council for Exceptional Children was based on the document (64th, New Orleans, LA, March 31-April 4, 1986). For related documents, see ED 270 907-908.

Available from: Special Education Resource Network/Resource Service Center, 650 University Ave. #201, Sacramento, CA 95825 ($30.00).

EDRS Price—MF01/PC13 Plus Postage.

Document Type: Conference Paper (150); Non-classroom Material (055)

Target Audience: Practitioners; Administrators

Major Descriptors: *Administrator Role; *Computer Managed Instruction; *Databases; *Disabilities; *Management Information Systems; *Microcomputers

Developed to fill a gap in preservice and inservice training, the materials focus on training special education administrators and program specialists to use computers in program management. Materials include packets to be reproduced for participants as well as outlines, transparency masters, lists of audiovisual materials, and scripts for trainers. Modules touch on the following topics, providing participant and trainer information for each: software, systems, and hardware; microcomputer word processing; administrative

planning; databases; microcomputer spreadsheet systems; programmed administrative applications—Individualized Education Program—and evaluation processes.

ED277169

The Evaluation and Selection of Instructional Software for Use with the Learning Disabled. CREATE Monograph Series.

Weisgerber, Robert A.; Blake, Patricia L.

Sep 1984, 47p. For the other monographs in this series, see ED 277 166-171.

EDRS Price—MF01/PC02 Plus Postage.

Document Type: Project Description (141)

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Educational Technology; *Instructional Material Evaluation; *Learning Disabilities; *Media Selection

Fourth in a series of six monographs on the use of new technologies in the instruction of learning disabled (LD) students, this paper explores issues related to the evaluation and selection of instructional software for LD students. Topics discussed include the following: (1) criteria for instructionally useful software (e.g., flexibility and unique display capabilities); (2) rationale for improved selection processes; (3) factors influencing selection (e.g., nature of documentation that accompanies the program); (4) producers of software; (5) evaluation forms and review procedures. A final section discusses elements of a comprehensive evaluation and selection instrument, including types of information to be gathered (vendor/program data, program description, instructional design features, and appropriate applications).

ED277166

Implications of Research and Theory for the Use of Computers with the Learning Disabled. CREATE Monograph Series.

Weisgerber, Robert A.

1984, 54p. For the other monographs in this series, see ED 277 167-171.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Review Literature (070); Evaluative Report (142)

Major Descriptors: *Cognitive Processes; *Computer Assisted Instruction; *Educational Diagnosis; *Educational Technology; *Learning Disabilities

This monograph, first in a series of six, provides the theoretical background and premises underlying the efforts of the research team and two collaborating California school districts to explore ways in which the computer and related technologies can be more fully and effectively used in the instruction of learning disabled students. Contents include the following: (1) an analysis of key theories about mental functioning and remediation; (2) a definition of learning disability and consideration of commonly associated variables (genetics, maturation, drug effects, trauma, laterality and hemispheric dominance, sex differeces, orthography and handwriting, and sensory integration); (3) an examination of visual perception, functional vision, and reading efficiency; (4) cognitive processes (including memory, problem solving, and task strategies); and (5) promising computer applications (including use of the computer for vision training, perceptual enabling skills, and cognitive processing skills).

ED278198

Sign On to Computers: A Dictionary of Computer Signs.

Zier, Cathy Diane; And Others

1986, 65p.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Dictionary (134)

Major Descriptors: *American Sign Language; *Computer Literacy; *Computers; *Finger Spelling; *Hearing Impairments; *Vocabulary

This manual defines basic computer terminology and presents sign language gestures for the terms. The manual uses the Atlanta Area School for the Deaf's Manually Coded English Sign Language System, a compilation of signs derived from Signing Exact English and American Sign Language; it also indicates those instances where fingerspelling is required. The 173 terms, covering such areas as programming languages, computer hardware, word processing, and computer functions, are entered in alphabetical order, and except for terms that are fingerspelled, such as REM and GOTO, each term is illustrated with a line drawing of a person making the sign for that term and (where appropriate) of the object being defined.

Distance Education

ED280451

The Results of an Independent Study Program Survey of Current and Former Students on the Role of Computer-Assisted Instruction in Correspondence Courses.

Hartig, Gordon

1987, 54p.

EDRS Price—MF01/PC03 Plus Postage.

Document Type: Reports—Research (143); Tests/Questionnaires (160)

Major Descriptors: *Computer Assisted Instruction; *Correspondence Study; *High School Students; *Independent Study; *Microcomputers; *Student Attitudes

Although computers are used for administrative purposes and for grading in correspondence course throughout the United States, there has been little application to date of computer-assisted instruction (CAI) in these programs. A survey was sent to 899 former students in Indiana University's high school independent study program to determine (1) to what extent various types of hardware are available to students in homes and schools; (2) what percentage have had experience with CAI; (3) how students react to CAI in general and to CAI in independent study courses in particular; and (4) what preferences students might have for implementation of CAI in independent study. Responses on the 81 questionnaires returned (9%) indicate that there would be ample interest in CAI if the computer were used to present material that is difficult to present clearly in paper and print. Students also indicate that they would be interested in CAI only if it did not cause substantial price increases in courses and textbook materials. It was concluded that the most efficient way to implement CAI in a distance learning environment would be to create software on microcomputer disk to supplement material presented in textbooks, workbooks, and learning guides. Due to the changing nature of computer technology, it is recommended that independent study programs experiment with CAI on a small-scale basis, and monitor these courses carefully to obtain information that could be used to facilitate a full-scale CAI effort in the future. The questionnaire is appended.

ED273268

Using Computers in Teaching: Telecourse Guide. A Pilot Project in Distance Learning by Satellite.

North Caroline State Dept. of Public Instruction

1986, 100p.

EDRS Price—MF01/PC04 Plus Postage.

Document Type: Guides—Classroom—Teacher (052)

Major Descriptors: *Communications Satellites; *Computer Assisted Instruction; *Computer Software; *Distance Education; *Microcomputers; *Telecourses

Part of a pilot project in distance learning by satellite in North Carolina, this telecourse is designed to increase teachers' awareness and understanding of how to use computers and instructional software in their teaching. The six 1-hour teleconference sessions in this telecourse include "live," interactive one-way video/two-way audio communications between the presenters in the studio and teachers in the three participating schools. This printed guide, the computers, and two series of software (some run on the IBM PC, others on the Apple IIe), and the telecourse facilitator complete the project's communications/instructional system. Structured as a survey of some basic and instructional applications of the computer, the telecourse includes an orientation to computer applications in the K-12 instructional program and sessions on writing; data analysis and problem solving; data collection, analysis, and graphing; arts education; and authoring and graphing. Subject areas represented in these sessions include communication skills, science, social studies, music, foreign languages, and mathematical sciences. Designed to engage participants in active involvement as they learn, this guide includes participant objectives, a presentation synopsis, teleconference preparation and follow-up activities, independent practice/personal growth activities, and a list of references and resources for each session. Detailed instructions for using individual software packages are also provided as appropriate, and some related uses of the software may be suggested. Most of the assigned readings are appended to the manual, including the final draft of the North Carolina competency-based curriculum guide for library/media and computer skills for grades K-12.

Minority Groups

ED280623

Computer Link Offering Variable Educational Records (Project CLOVER). A National Diffusion Network Developer/Demonstrator Project.

Arkansas State Dept. of Education, Little Rock.

1984, 25p. Some pages may not reproduce well due to marginal legibility.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Project Description (141)
Target Audience: Practitioners
Major Descriptors: *Computer Uses in Education; *Information Systems; *Migrant Education; *School Role; *Student Records

Project CLOVER (Computerized Link Offering Variable Educational Records) is a demonstration project designed to increase use of the Migrant Student Record Transfer System (MSRTS). Project CLOVER (1) helps to ensure that schools attended by migrant students have the capability to receive and transmit academic and medical information on students; (2) informs schools and other educational and health organizations serving migrant students about the benefits of the MSRTS computer system; (3) trains appropriate school/agency personnel; (4) provides follow-up assistance and monitoring of areas utilizing the system; (5) conducts evaluations of system use and training; and (6) provides computer services, as negotiated. The booklet outlines responsibilities of MSRTS/CLOVER and explains eligibility for the project and responsibilities of project users. It discusses the four elements of the MSRTS process—enrollment, withdrawal, updating, and inquiry; issues of personnel selection; and training procedures. The booklet explains content and use of Migrant Student Health Records and the Migrant Student Education Records contained on MSRTS/CLOVER and presents samples from the MSRTS Academic Skills Booklets used to code student skills. The use of codes for the medical and educational records is explained. Samples of the Migrant Student Educational Record, Migrant Student Health Record, and Health Data Entry Form are included.

ED282698
Hupa Natural Resources Dictionary.
Bennett, Ruth, Ed.; And Others
1985, 69p. Some pages may not reproduce well due to marginal legibility. For related documents, see ED 282 694-703.
EDRS Price—MF01/PC03 Plus Postage.
Language: Hupa, English
Document Type: Dictionary (134); Instructional Material (051); Multilingual/Bilingual Materials (171)
Target Audience: Students
Major Descriptors: *American Indian Education; *American Indian Languages; *Animals; *Computer Oriented Programs; *Native Language Instruction; *Student Publications

Created by children in grades 5-8 who were enrolled in a year-long Hupa language class, this computer-generated, bilingual book contains descriptions and illustrations of local animals, birds, and fish. The introduction explains that students worked on a Macintosh computer able to print the Unifon alphabet used in writing the Hupa language. Students learned to type on the computer, to use the Macintosh mouse to manipulate actions on the computer, and to draw and "paint." A typical page is the work of one student and contains a computer-generated drawing of an animal and computer generated text in Hupa and English. Numerous drawing techniques and types of print are used. A sample of descriptions in English translation includes: deer is sweet to eat, bear—you never know what he will do, coyote stays around the flats, otter likes to eat salmon, and weasel is rattlesnake's husband. Descriptions and illustrations are created for 29 animals ranging from dog and cat to beaver and pileated woodpecker.

ED271234
CHOICE Cloze. Review Software for Occupational Resources. CHOICE (Challenging Options in Career Education).
Pitts, Ilse M.; And Others
1984, 22p. For related documents, see ED 248 086 and ED 271 235-238.
Available from: CHOICE, P.O. Box 250, New Paltz, NY 12561.
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Teaching Guide (052)
Target Audience: Teachers; Practitioners
Major Descriptors: *Career Education; *Cloze Procedure; *Computer Managed Instruction; *Courseware; *Migrant Education; *Occupational Information

This computer software manual provides detailed instructions on how to use the Cloze Apple computer program to reinforce job and role information presented to secondary-aged migrant students in the CHOICE Occupational Resources student text and to retrieve and review student work. The manual includes an introduction, hardware requirements, instructions for making backup copies of the program, learning objectives, uses in a tutorial or classroom setting, description of how the student program works, features of the teacher file, program outline, and general program flow chart. Directions in the Teacher Filer Menu allow the teacher to turn the sound portion of the program on or off, decide if users will have access to a printed summary of their scores, set a date which will appear on all records, set up a class file to store results of each student's work on the program disk, add or delete names within the class file, bring a copy of CHOICE Cloze paragraphs, list student names to a printer, and view students' work after they have used the disk. Student learning

objectives include introducing/developing computer awareness, inferring responses from context, recalling reading selection details, promoting/developing techniques of the Cloze format, and fostering independent work.

ED271238

Security. Review Software for Advanced CHOICE. CHOICE (Challenging Options in Career Education).

Pitts, Ilse M.; And Others

1985, 18p. For related documents, see ED 271 234-237.

Available From: CHOICE, P.O. Box 250, New Paltz, NY 12561.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Career Education; *Computer Assisted Instruction; *Courseware; *Migrant Education; *Occupational Information

CHOICE Security is an Apple computer game activity designed to help secondary migrant students memorize their social security numbers and reinforce job and role information presented in "Career Notes, First Applications." The learner may choose from four time options and whether to have the social security number visible on the screen or not. The instructor may use the Teacher File Handler to enter a class list of learners and their social security numbers. Program objectives are to memorize one's social security number, recognize the social security number as having three segments, practice basic computer keyboard manipulation, develop/increase computer assisted instruction and awareness, promote and develop observation and matching skills, improve visual memory, foster goal setting and task completion, and improve long- and short-term recall. This teacher software manual details hardware requirements, backup copying procedures, student learning objectives, use of the program as a tutorial or in a classroom setting, step-by-step directions for using the program and file handler, instructions for turning the sound on or off, and a program outline and flow chart.

ED271235 RC015738

Tool Match. Review Software for Basic CHOICE. CHOICE (Challenging Options in Career Education).

Pitts, Ilse M.; And Others

1985, 16p. For related documents, see ED 271 234-237.

Available from: CHOICE, P.O. Box 250, New Paltz, NY 12561.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Career Education; *Computer Assisted Instruction; *Courseware; *Migrant Education; *Occupational Information; *Programed Instructional Materials

CHOICE Tool Match is an Apple computer concentration-type activity in which learners select two numbered windows in an attempt to match the tools displayed, reinforcing job and role information presented in the CHOICE Basic Job and Role activity folders and workbooks for migrant students. In place of written directions, the learner is provided with a visual sample of the game screen and player options are depicted graphically as well as in writing throughout the program, facilitating independent disk use after a brief teacher introduction. Program learning objectives include reinforcing career concepts, identifying tools related to particular workers, reinforcing tool and worker vocabulary, practicing basic computer keyboard manipulation, developing/increasing computer assisted instruction and awareness, recognizing symbols as representations of concepts, recognizing graphic representations of objects, and improving visual memory. This teacher software manual details hardware requirements, backup copy procedures, student learning objectives, use of the program as a tutorial or in a classroom setting, step-by-step directions for using the program, instructions for turning the sound on or off, and a program outline and flow chart.

ED271237

Tool School. Review Software for Basic CHOICE. CHOICE (Challenging Options in Career Education).

Pitts, Ilse M.; And Others

1985, 19p. For related documents, see ED 271 234-237.

Available From: CHOICE, P.O. Box 250, New Paltz, NY 12561.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Career Education; *Computer Assisted Instruction; *Courseware; *Migrant Education; *Occupational Information

CHOICE Tool School is an Apple computer software program designed to reinforce job and role information presented to primary-aged migrant students in the Basic Job and Role activity folders and workbooks. Learners must decide if randomly displayed tools are or are not used by the worker selected for the game theme. Learners may choose the level of difficulty (picture format or picture/word format) and use the disks independently. When each player has made eight decisions, a winner is declared and a summary of each learner's attempts is provided. Each time disks are used, random arrangement of tools creates a new challenge. Objectives of the program are to reinforce career concepts, identify tools related to particular workers, recognize symbols as representations of concepts, recognize graphic representations of objects, recognize words as representations of objects, reinforce tool and worker vocabulary, practice basic computer keyboard manipulation, and develop computer awareness through computer assisted instruction. This teacher software manual details hardware requirements, backup copy procedures, student learning objectives, use of the program as a tutorial or in a classroom setting, step-by-step directions for using the program, instructions for turning the sound on or off, and a program outline and flow chart.

ED271236

Word-Tool Match. Review Software for Basic CHOICE. CHOICE (Challenging Options in Career Education).

Pitts, Ilse M.; And Others

1985, 16p. For related documents, see ED 271 234-237.

Available from: CHOICE, P.O. Box 250, New Paltz, NY 12561.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Teaching Guide (052)

Target Audience: Teachers; Practitioners

Major Descriptors: *Career Education; *Computer Assisted Instruction; *Courseware; *Migrant Education; *Occupational Information; *Programed Instructional

CHOICE Word-Tool Match provides migrant youth the opportunity to use the computer in self-directed ways, while reinforcing job and role information presented in Basic Job and Role activity folders and workbooks. Learners select whether to play with one or two players, the career that will provide the theme for the game, and whether to play the easy or hard version. Learners match tool pictures to tool words displayed at the top of the screen. When each player has made eight decisions, a winner is declared and a summary of each learner's attempts is provided. Each time disks are used, random arrangement of tools creates a new challenge. Program objectives are to reinforce career concepts, identify tools related to particular workers, reinforce tool and worker vocabulary, practice basic computer keyboard manipulation, develop/increase computer awareness through computer assisted instruction, recognize symbols as representations of concepts, recognize graphic representations of objects, and recognize words as representations of objects. This teacher software manual details hardware requirements, backup copy procedures, student learning objectives, use of the program as a tutorial or in a classroom setting, step-by-step directions for using the program, instructions for turning the sound on or off, and a program outline and flow chart.

ED280906

Technology in the Schools: Serving All Students.

Webb, Michael B.

1986, 25p.

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Black Students; *Computer Uses in Education; *Educational Technology; *Equal Education; *New York

Despite significant improvements in the acquisition and use of learning technologies by schools with large percentages of minority students, data collected by the New York State Education Department indicate that schools serving predominantly black and minority students—many of whom are economically disadvantaged—do not provide access to technology comparable to that provided by affluent schools. To maximize the benefits of technology in education, the following is necessary: (1) before policy formation and planning, it must be determined what technology would most effectively achieve instructional, management, administrative, and equity goals; (2) poorer districts should receive state funding; (3) state programs for hardware and software aid should be modified to provide flexibility and technical assistance. Further suggestions deal with eliminating bias in software, staff development, developing a center for advanced technology, and research activities.The report contains a list of references, and the following: (1) a list of state agencies concerned with educational technology in New York; (2) a copy of the state educational policy concerned with technology and recent initiatives; and (3) information on current legislation concerned with technology and education.

Preschool Education

ED278486
An Assessment of Children's Responses to Original Computer Readiness Activities.
Hinitz, Blythe F.; And Others
Nov 1986, 28p. Paper presented at the Annual Convention of the National Association for the Education of Young Children (Washington, DC, November 13-16, 1986).
EDRS Price—MF01/PC02 Plus Postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Uses in Education; *Games; *Kindergarten Children; *Preschool Children; *Readiness

This 3-year research project was initiated to demonstrate gaming as a methodology for developing young children's readiness skills for interacting with computers, and to investigate the feasibility of doing research in regular classroom settings. The first year was devoted to designing, making, and refining instructional materials. During the second year, one Head Start and two kindergarten classes participated as experimental and control groups. In the third year, the number of Head Start and kindergarten experimental and control groups was increased. Experimental group classes experienced an initial instructional unit in which functions of various computer parts, games, songs, and activities were taught. Subsequently, both experimental and control classes used computers. Data were collected on pre-tests and post-tests. Generally, results showed that the initial instructional unit helped the kindergarten experimental class children to remember the largest number of computer-related terms. The initial instructional phase also helped the Head Start children remember as many of the terms as children in the kindergarten control classes who were about one year older, and in some cases more. It is concluded that gaming is an effective technique for preparing children to use computers. Thirty-one references are provided.

ED279311
"This Computer Gives You a Hard Bargain": Is It Conflict or Frustration When Software Won't Let You Change Your Mind?
Kuschner, David
Apr 1986, 17p. Paper presented at the Annual Convention of the American Educational Research Association (San Francisco, CA, April 16-20, 1986).
EDRS Price—MF01/PC01 Plus Postage.
Document Type: Evaluative Report (142); Conference Paper (150)
Target Audience: Researchers
Major Descriptors: *Cognitive Development; *Computer Graphics; *Computer Software; *Creative Art; *Responses; *Young Children

This study focused on the cognitive conflicts experienced by young children in using software programs that provided them with tools to create and/or combine individual graphic elements into larger structures. Six 5-year-old children, none with prior computer experience, were observed using three programs—Kids at Work, Picture Perfect, and Springboard. Through 12 sessions, each child spent 15 to 20 minutes per week interacting with the microcomputer and the same program. Observations revealed several types of conflict caused by software constraints when a child began to build a conceptual picture: only one of the programs (Kids at Work) allowed the children to rearrange what they had already done; none of the programs allowed the children to change the direction faced by individual graphics after they had been put in place; the children did not at first understand the "color fill" function of Picture Perfect and there was no way to correct their mistakes. These results suggest that the constraints of these particular software programs short-circuited the children's interest in and attention to that experience. It is concluded that if software for young children is to maximize their cognitive development, it should provide an opportunity for the child to exercise his intentions, reflect on the results of his actions, and subsequently revise these intentions/actions. The Logo programming language and software which emphasizes kinetic movement are cited as two types of software that might facilitate cognitive development. Fourteen references are provided.

ED279397
Developing Microcomputer Programs for Early Literacy.
Moxley, Roy A.; Barry, Pamela J.
1986, 55p.
EDRS Price—MF01/PC03 Plus Postage.
Document Type: Research Report (143)
Major Descriptors: *Computer Software; *Early Experience; *Literacy Education; *Microcomputers; *Preschool Children

Through an adaptation of a language experience approach, microcomputer programs were designed to develop the literacy skills of four 4-year-old nursery school children. In order to document the design process,

the intervention procedures, and their effects, case studies were made. Instruction was based on a highly interactive strategy with short, frequent cycles of program modification in a variation-selection-retention paradigm. The aim of the intervention study was to progressively select instruction that appeared to be related to the sufficient conditions of children's improved performance. Subjects were seen individually twice per week in 20- to 30-minute sessions at the West Virginia University Nursery School. The experimenters worked with three children each semester: one child in the first semester only, one in the second semester only, and two in both semesters. Programs focused on (1) spelling single words, and (2) composing pictures with letter and word commands, and adding verbal text to the pictures. Results are presented in terms of changes in the children's performance, in the computer programs, and in instructional procedures. Pre- and post-test comparisons indicated that all children improved their literacy skills. Improvements ranged from increased spelling skills to the substantial acquisition of a small writing and reading language system. Discussion of outcomes focuses on reasons for attributing at least partial efficacy to the instructional conditions as a whole and ways the programs could be used in classrooms.

ED280566

The Evolution of an Effective Home-School Microcomputer Connection.

Wright, June L.; Church, Marilyn J.

Apr 1986, 21p. Paper presented at a Working Conference on "The Computer in the Home: Its Challenge to Education" (Interlaken, Switzerland, April, 1986).

EDRS Price—MF01/PC01 Plus Postage.

Document Type: Project Description (141); Position Paper (120); Conference Paper (150)

Major Descriptors: *Computer Software; *Microcomputers; *Parent Attitudes; *Parent Participation; *Preschool Children; *School Community Programs

A model of parent involvement in computer education is discussed in relation to activities of the Computer Discovery Project at the Center for Young Children, University of Maryland. Content focuses on parents' attitudes and concerns about the use of microcomputers in educational settings. Growth in parents' involvement with computers is documented and is reported to be largely due to a policy allowing parents to take microcomputers and software home over weekends. In addition, the design of a research project to assess parents' evaluation of software is described. Pilot study findings have indicated that opinions of parents vary widely on the value of each piece of software used and that preferences for particular programs are evident. Concluding remarks describe other school/community outreach programs, including (1) the Community-Classroom Computer Connection Program, which emphasizes the need to coordinate the use of home technologies with school activities and goals; and (2) the "Playing to Win" project, which offers computer experience at correctional facilities, public libraries, and to parents and children living in lower socioeconomic housing in East Harlem.

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